From:	Rubin, Carter
To:	Wallace, Mary Ann
Cc:	Colin Parent; Noah Harris
Subject:	[EXTERNAL] Support re June 16 ATI Item 5 Parking Policy Reform
Date:	Tuesday, June 15, 2021 12:52:19 PM
Attachments:	San Diego parking reform support letter.pdf

Hi there,

Please see the attached letter expressing support for Item 5 on tomorrow's ATI agenda.

Best,

Carter

CARTER RUBIN
Mobility and Climate Advocate
Healthy People & Thriving Communities Program

NATURAL RESOURCES
DEFENSE COUNCIL
1314 SECOND STREET
SANTA MONICA, CA 90401
T 310.434.2300
CRUBIN@NRDC.ORG
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From: SDGov Webmaster
To: Wallace, Mary Ann
Subject: Form submission from: Active Transport and Infrastructure Committee Public Comment Form
Date: Tuesday, June 15, 2021 7:03:00 AM

Submitted on Tuesday, June 15, 2021 - 07:02

Submitted values are:

Name: Katie Matchett
Email: Katie.matchett@beautifulpb.com
City: San Diego
State: CA
Meeting Date: Wed, 06/16/2021
Comment Type: Agenda Comment / Closed Session Comment
Agenda Item Number: 6
Comments:
As President of beautifulPB, a local nonprofit working to support safe mobility and sustainability in Pacific Beach, I would like to reiterate our organization's support of the proposed budget for the Pacific Beach Community Parking District.

Funding from the proposed meter pilot program will support a number of critical projects for our community. Pacific Beach is one of the most-visited beach communities in the city, but lacks adequate transit service to get visitors and residents to and from the beach. The proposed neighborhood electric vehicle shuttle will provide a much-needed connection to the Balboa Transit Station, increasing overall transit service in our community and decreasing the need to drive and park at the beach. Additional projects will support safe bicycle and pedestrian mobility, further decreasing parking demand.

Parking has long been a critical issue for our community. With the proposed Community Parking District Budget, Pacific Beach will finally have the ability to manage our scarce parking resources and take advantage of funding to create a safe and clean community for everyone to enjoy.

The results of this submission may be viewed at:
https://www.sandiego.gov/node/1034834/submission/514618

From: SDGov Webmaster
To: Wallace, Mary Ann
Subject: Form submission from: Active Transport and Infrastructure Committee Public Comment Form
Date: Wednesday, June 16, 2021 7:01:31 AM

Submitted on Wednesday, June 16, 2021 - 07:01

Submitted values are:

Name: Regina Sinsky Crosby
Email: regina@sinsky.net
City: San Diego
State: CA
Meeting Date: Wed, 06/16/2021
Comment Type: Agenda Comment / Closed Session Comment
Agenda Item Number: 6
Comments: As Pacific Beach emerges from a pandemic and the City of Sam Diego (rightfully) prioritizes communities of concern in the new budget, it's time for the community to self-sufficiently fund mobility needs. PB is San Diego's beach, as evident by the community's status as a Transit Priority Area. There's a new trolley coming in the winter, new electric bikes and scooters that need safe places to be used and enjoyed, and schools and senior zones that lack safe bike lanes and sidewalks. Pacific Beach has had a Community Parking District for more than 15 years. As we urgently strive to meet climate goals and meet Vision Zero it's time to give a paid parking pilot a try. Charging for priority parking in the community's current commercial, 2hr zone will provide the parking turnover businesses need and the revenue neighbors and visitors alike need to safely move about this TPA. For too long PB has had to shoulder the weight of hundreds of thousands of summertime, weekend visitors and their cars with no additional resources to address the costs of maintaining free parking. It's time for community parking revenue to make PB a resilient, world class beach destination.

The results of this submission may be viewed at:
https://www.sandiego.gov/node/1034834/submission/515092

From:	Garver, Justin
To:	Wallace, Mary Ann
Subject:	FW: Bullock To SD Active Transportation and Infrastructure Committee, Re Car Parking
Date:	Wednesday, June 16, 2021 9:33:06 AM
Attachments:	image002.png image009.png image011.png image014.png image015.png image017.png image020.png image025.png 2020LDV_ClimateStabilizingVrsCARB_AWMA.pdf MBullock-Plat-FP-EA-796315-Deriving_Climate_Stabilizing30March20-R3.docx 1_DividendAccount2020v2.doc BullockEUEC2020_ParkingSystemsWithOscCivicCenterG5_E_v4.pdf DividendAccountParkingRFI3.docx AdoptedSD_CentralCommitteeParkingResolutionV9_Updated.doc

Public Comment for ATI Committee Item 5

From: mike_bullock@earthlink.net <mike_bullock@earthlink.net>
Sent: Tuesday, June 15, 2021 7:46 PM
To: Garver, Justin <JGarver@sandiego.gov>; CouncilMember Marni von Wilpert <MarnivonWilpert@sandiego.gov>
Subject: Bullock To SD Active Transportation and Infrastructure Committee, Re Car Parking

Committee Chair Councilmember Marni von Wilpert (District 5)
City Administration Building 202 C Street, Floor 10
San Diego, CA 92101 619-236-6655
MarnivonWilpert@sandiego.gov

In Care of Justin Garver, Chief of Policy
Active Transportation and Infrastructure Committee Consultant
Office of Councilmember Marni von Wilpert
City of San Diego, Council District 5
www.sandiego.gov/citycouncil/cd5
Office: (619)236-7020

Subject: Proposed Car Parking Ordinance to Eliminate Minimums and Why Your Committee Needs to do More

Honorable ATI Committee Chair, Vice Chair, Members, and Staff,

Introduction

I am Mike Bullock. I live in Oceanside. My bicycle has been my primary mode of transportation for over fifty years. I have a BSEE, a MSE, and worked as an engineer for Lockheed-Martin, mostly as a Satellite Systems Engineer. Climate change is both a Systems Engineering problem and a political problem. I retired from Lockheed-Matin in 2007. My first Air and Waste Management (AWMA) paper was presented in 2010. I have presented papers at technical conferences in Long Beach, Calgary, Guadalajara, San Diego, New Orleans, Chicago, and the DC Metro Area. I speak on how Light-Duty Vehicles could achieve climate-stabilizing targets and on related topics. Conferences first consider a submission's title and abstract. If those meet the Conference requirements, then qualified experts will peer-review the paper's derivations, spread sheets, assumptions, and conclusions. The review process was particularly rigorous for my 2010 paper in Calgary Canada. The session was urban planning. My background was not typical for such a session.

Overview of Comments

My first comment is that **I support eliminating car-parking minimums in Transit Priority Areas (TPAs)**, for both residential developments, as your city has already done, and for non-residential developments, as you are now contemplating. I also support adopting car-parking maximums. San Diego has adopted parking maximums of one per housing unit. I support these policies even though they will often create problems in the surrounding neighborhoods. These problems could lead to other car-parking policy improvements. However, this process is far from optimum and takes too long, considering our climate emergency.

My other comments are as follows.

1. We have a climate emergency. (None of the supporting documents I looked at that are associated with you meeting agenda suggest that we have a climate emergency. Perhaps I overlooked that suggestion in one of the documents.)
2. Cars are our biggest problem.
3. Please don't settle for incremental progress on car parking.
4. Please take actions to get a comprehensive, fully thought-out, car-parking system, *Dividend Account Parking* (DAP), with additional features to help solve our electrical grid problems, widely adopted. DAP has been fully defined in technical conferences and has been endorsed by organizations and thoughtful individuals because it is an enforceable mitigation measure that will increase economic equity and reduce GHG emissions. The very same system (DAP) will work for all kinds of parking.

I will now provide background information for these four, follow-on statements.

Climate Emergency

Alexandria Ocasio Cortez most famously stated the following, in 2018:

> *"World's gonna end in 12 years unless we address climate change."*

She is an elected member of Congress and should be taken seriously. Neither MSNBC nor CNN noticed, at first. Then Fox News ridiculed her. After that ridicule, MSNBC and CNN defended her without explaining her choice of words.

"Unless we address climate change", should have been "unless we achieve climate -stabilizing targets". I believe that she wanted us to focus on the first words ("World's gonna end"), which were selected to match the dialect of her district and to motivate people to consider why she used those words.

How could the world end in 12 years? Of course, it could not. The earth will be here whether it is teaming with life or nearly dead. But she is a very smart person and she wanted people to do their own research and find out the terrible truth about our climate emergency.

Governor Brown said this to the Pope:

> *"Humanity must reverse course or face extinction."*

"Reverse course" must be quantified and qualified. That is our job, based on what the climate scientists are telling us. We are doing that now. Congress Member Ocasio Cortez provided some quantification by saying "in 12 years" which means 2030, since her statement was made in 2018. The amount of reduction needed by 2030 was not provided. We must ***face*** extinction because we are going to go extinct, if we don't "reverse course", even if it takes some time to go extinct. If we miss our 2030 requirement (often called a "target"), the climate scientists' consensus will be that, regardless of what we do, we will suffer an agonizing march to extinction.

What Congress Member Ocasio Cortez wanted us to find out is that the required reduction, for the industrialized world, is to get our emissions to be 80% below 1990 levels, by 2030. It is our first-occurring requirement, or "target". The first-occurring target is the most important target because if we fail to achieve that target, the other targets won't matter. 80% below 1990 levels, here in California, is around 70% below where we are right now. Doing that in 10 years is nearly impossible. It is certainly impossible if we fail to recognize our need to take decisive action. We do not have enough time to do incremental policy changes as is currently being suggested. You must do much more than just eliminating parking minimums.

The problem here is that there are warming-feedback processes, that are nearing points (tipping points), where they will become so large that we will not be able to stop them from setting off other warming feedback processes, resulting in the end of most life forms on the planet. We will suffer, in the words of *Scientific American*, "a devastating collapse of the human population."

The following Figures are included to show that these statements are true.

Figure 1 Three Indications that We Will Be Forced Onto the Road to Extinction

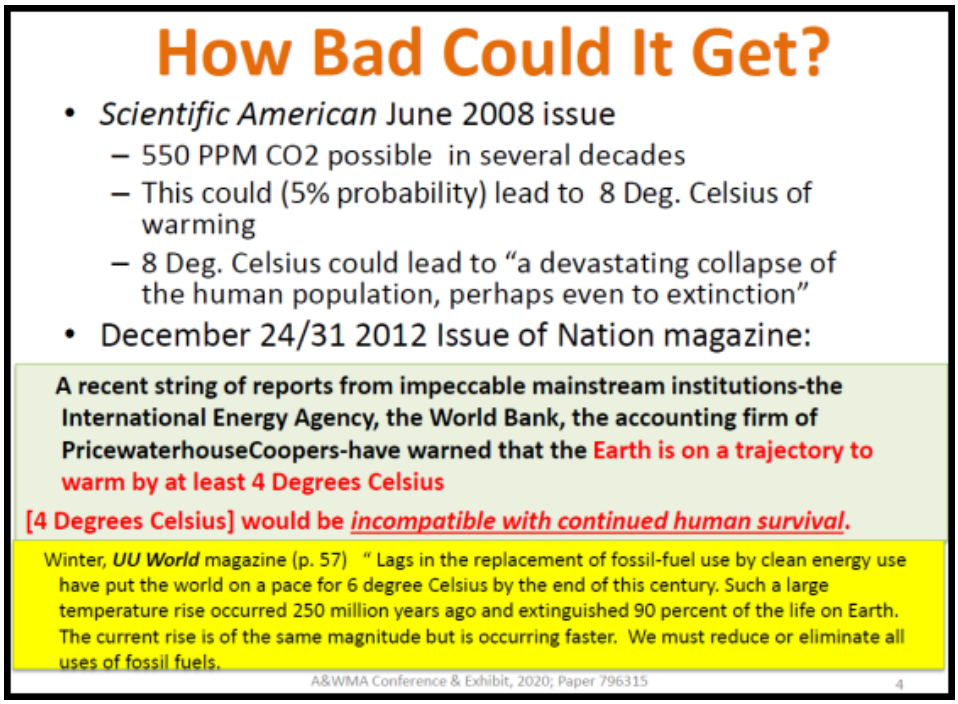


Figure 2 800,000 Years, Showing We Live In a CO2 Spike

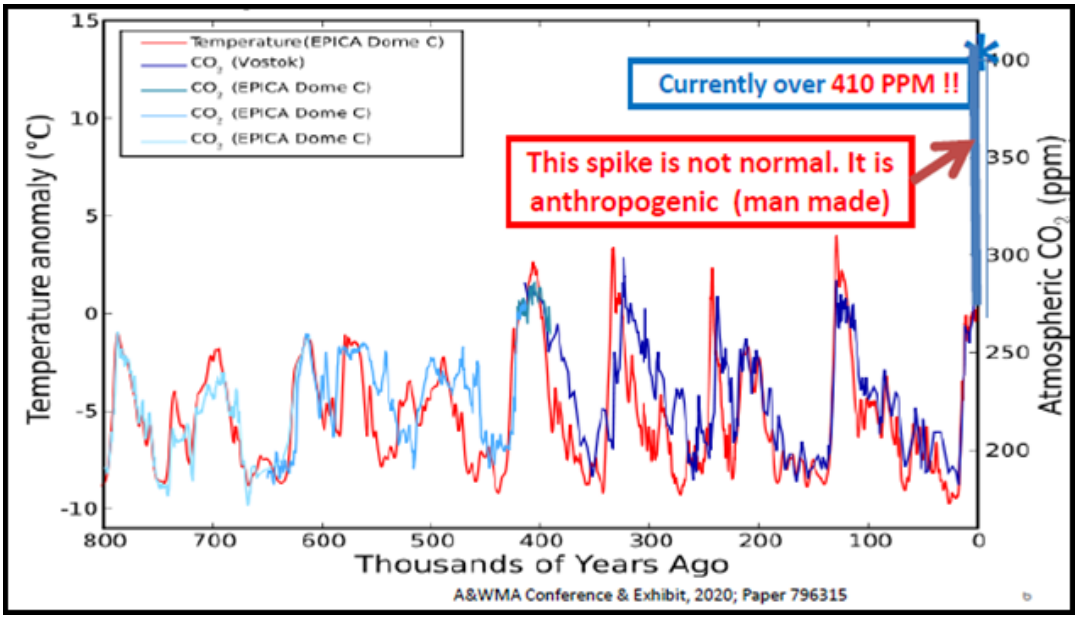


Figure 3 **1,000 Years, Showing that the Spike Is Caused By Our Industrialized Revolution**

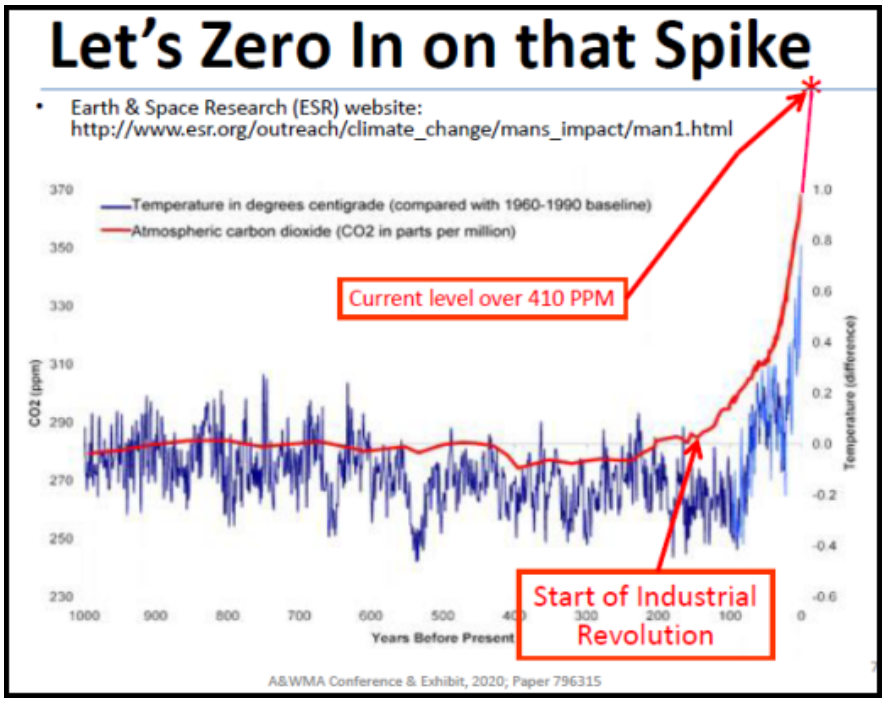
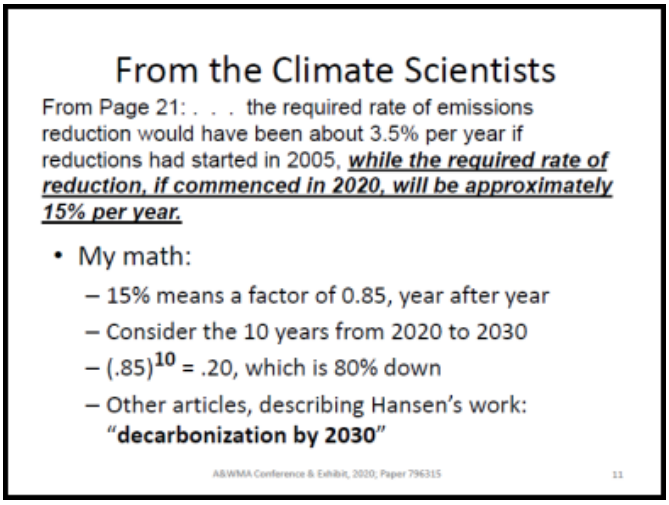


Figure 4 **One Simple Derivation of "*80% Down by 2030*"**

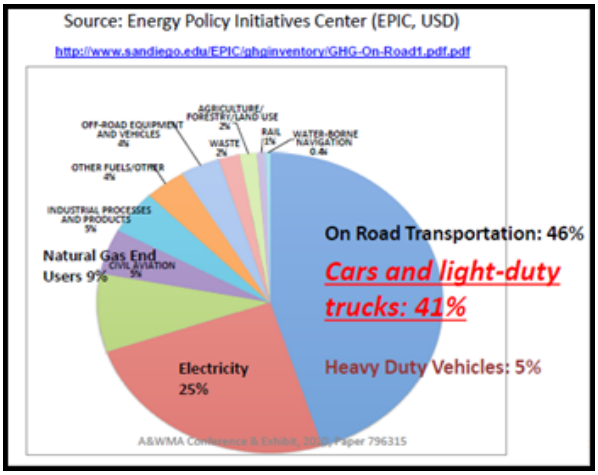


The first file that is attached to this email (the first attached file) contains the slides that I presented (virtually) at the last AWMA Conference. They also make the case that we have a climate emergency. They show the full derivation of the enforceable measures that could, taken together, ensure that cars will emit no more GHG than is permitted under our 2030 requirement. The 2nd attached file is the peer-reviewed paper that was the basis for my AWMA presentation.

Our Biggest Problem: Cars

Figure 5 is over 10 years old. It was back when our electricity was generated from about 95% fossil fuel. Today, that plot would show on-road transportation to be a much larger percentage, because electricity in now generated from about 65% fossil fuel.

Figure 5 Old County GHG Emission Data



No Need to Settle for Incremental Solutions and In Fact, We Better Not

Back when Mayor Faulkner proposed, for apartments in TPAs,

- ending parking minimums,
- having parking maximums, and

- unbundling the rent for parking from the rent for an apartment,

the Transit Priority Area (TPA) neighbors (or those who were projected to be in TPAs) were understandably concerned. Council President Dr. Jen Campbell voted against the Faulkner proposal. Some might say she feared car-intrusion into the neighborhoods more than she feared climate change. Some might also say that she had no compassion for the single mother (or father) who owned no car and was having trouble putting food on the table for their kids and could therefore use the extra cash she (or he) could earn under the "unbundling" provision of the Faulkner proposal. Regardless, there is a car-intrusion problem, and this problem is a potential political problem. The Falkner proposal is much better than doing nothing, but it is not enough. It is flawed. It is fairly complicated for a government proposal, but it is not nearly complicated enough.

DAP protects neighborhoods. Here's why. On-street pricing is, when car-parking occupancy rate exceeds a mutually agreed-to threshold (perhaps 50%), value priced and the earnings go to the residents living on the property adjacent to the on-street parking. The money flows automatically, like Uber. There is also congestion pricing so the amount of money that a resident can earn is unbounded. Also, with DAP, there should be very little need to drive around looking for parking. The system is fully automated. Drivers will be able to use a car app or a phone app to get directions to an available parking place that is at the desired price and walk-distance from their specified destination, at the specified time duration.

Here is a quick definition of Dividend Account Parking:

> In a Dividend Account Parking system, parking is value-priced (with a congestion-pricing algorithm that is used when it is needed) and fully shared, where "fully shared" means that it can be used by all the drivers that have an account in the system. (That's why "Account" is part of the name.) It is fully automated so the money will automatically flow as needed. The earnings go to driving-age adults, whether they drive or not, that would be losing money under the old system of so-called "free parking" or to those for whom the parking is built. The formulas used to compute the earnings vary by case.
>
> Examples of those getting earnings are as follows:
> - those renting an apartment,
> - those making round trips on transit if there is a parking lot at a transit station,
> - employees,
> - those living at a residence that has on-street parking on the edge of the property, or
> - shoppers.
>
> For the case of workers, there must be an "add in" payment made to each every-day driver, sized so that the every-day driver loses no money under the system. (Workers need to make more money not less.)
>
> It would be best if the system were to be operated by an aggressive (expansionist), disruptive, third-party vendor. This vendor would know how to monetize both unused parking and user data. That would help them earn money, pay the "add-in" amounts, and still make it lucrative to drive less. They would have a system to protect privacy. They would be responsive in reporting outcomes to those in government and others.

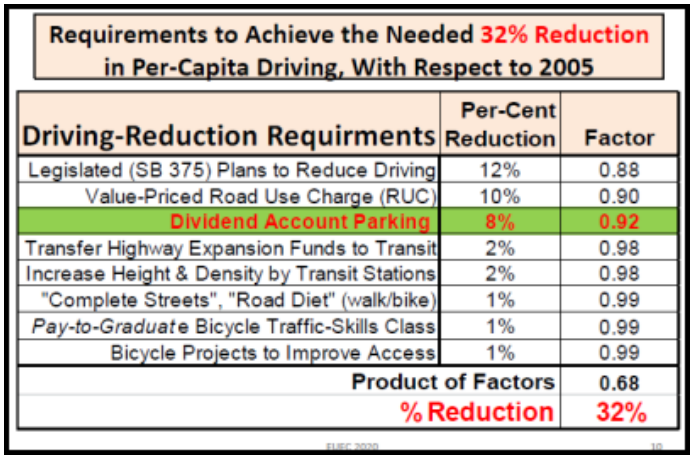
The system is fully defined in the next section, with the help of the attached files.

Figure 6 is from a report deriving a set of enforceable measures to cause cars, our biggest problem, to emit no more GHG than is allowed under the 2030 requirement. Figure 6 shows the enforceable measures to reduce per-capita driving. Figure 6 shows the importance of car parking policy.

The parking is the third line down, highlighted in red with the green background. It would be much more difficult to get the needed driving reduction of 32% if we failed to value-price nearly all parking.

We need to improve the way people pay for the use of car parking.

Figure 6 Enforceable Measures to Reduce Per-Capita Driving



Requirements to Achieve the Needed 32% Reduction in Per-Capita Driving, With Respect to 2005

Driving-Reduction Requirments	Per-Cent Reduction	Factor
Legislated (SB 375) Plans to Reduce Driving	12%	0.88
Value-Priced Road Use Charge (RUC)	10%	0.90
Dividend Account Parking	8%	0.92
Transfer Highway Expansion Funds to Transit	2%	0.98
Increase Height & Density by Transit Stations	2%	0.98
"Complete Streets", "Road Diet" (walk/bike)	1%	0.99
*Pay-to-Graduat*e Bicycle Traffic-Skills Class	1%	0.99
Bicycle Projects to Improve Access	1%	0.99
Product of Factors		0.68
% Reduction		32%

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The question arises: how much will this help? The cases shown in Figure 7 and the overall organization of the Table is from *How to Get Paid to Bike to Work: A Guide to Low-traffic, High-Profit Development*, by Patrick Siegman, published in *Bicycle Pedestrian Federation of America*, 1995. The report provides references for the cases shown.

The *Belview* case can't be used because other changes took place at that location, besides pricing, that would decrease driving. The three largest decreases in driving are 38%, 36% and 31%. The very worst case was a 15% decrease in driving, which is still significant. I assumed 8%, as shown in Table 6. What percentage of parking will be DAP, in 2030? Not a large percentage if leaders do not take notice.

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Figure 7 Pricing Really Does Reduce Driving

Impact of Financial Incentives on Parking Demand			
Location	Scope	1995 dollars per mo.	Parking Use Decrease[1]
Group A: Areas with little or no public transportation			
CenturyCityDistrict, West Los Angeles	3500 employees at 100+ firms	$81	15%
Cornell University, Ithaca, NY	9000 faculty & staff	$34	26%
San Fernando Valley, Los Angeles	1 employer, 850 employees	$37	30%
Costa Mesa, CA		$37	22%
Average for Group		**$47**	**23%**
Group B: Areas with fair public transportation			
Los Angeles Civic Center	10000+ employees, several firms	$125	36%
Mid-Wilshire Blvd., Los Angleles	1 mid-size firm	$89	38%
Washington DC Suburbs	5500 employees at 3 worksites	$68	26%
Downtown Los Angeles	5000 employees, 118 firms	$126	25%
Average for Group		**$102**	**31%**
Group C: Areas with good public transportation			
University of Washington, Seattle Wa.	50,000 faculty, staff & students	$18	24%
Downtown Ottowa, Canada	3500+ government staff	$72	18%
Bellevue, WA	1 firm with 430 employees	$54	39%[2]
Average for Group, but not Bellevue Washington		**$45**	**21%**
Over All Average, Excluding Bellevue Washington			**25%**

[1] **Parking vacancy would be higher!** [2] **Not used, since transit & walk/bike facilities also improved.**

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Comprehensive, Fully Thought-Out, Car-Parking

The third attached file describes the car-parking system that we so desperately need, ASAP. It is an updated version of the 2010 paper to the AWMA, which was presented in Calgary. It was peer-reviewed by the AWMA.

The fourth attached file contains the slides I presented at the Energy-Utility-Environment Conference (EUEC) in 2020. They provide a better definition of the needed car-parking system, with a focus on employee parking.
The fifth attached file is a draft RFP-supporting document. It is needed because it would be best if the car-parking system is designed, installed, and operated by a 3rd-party vendor, identified in an RFP process. We want an aggressive company that wants to be an economically disruptive force, replacing poor car parking systems with a system that will stop incentivizing driving and car ownership.

It is also true that car parking systems need to support our renewable grid requirements. The results shown in the first and the second attached files show that it would be very helpful to have 2030 electricity be 90% from renewables, instead of 85%. Figure 8 is from the first attached file. Note the difference between the *Balanced_1* and the *Balanced_2* cases. It will be easier to achieve the *Balance_2* electrification schedule than the *Balanced_1* schedule. This shows that it would be better to have the renewable electricity be 90% in 2030 instead of 85%. (There are fewer purple years, which are years with percentage that will be difficult to achieve.) Good car parking management, like roof-top solar would help significantly achieve the 2030 climate-stabilizing target.

Figure 8 Cases Considered Showing

4 Cases that Support Climate Stabilization

Note: Purple denotes difficult; red, impossible.

	Case Designations			
	Balanced_1	Balanced_2	2005 Driving	Mary Nichols
% Renewable Electricity	85.0%	90.0%	90.0%	90.00%
% ZEVs, Year 2016	2.0%	2.0%	2.0%	2.70%
% ZEVs, Year 2017	2.0%	2.0%	2.0%	2.70%
% ZEVs, Year 2018	3.0%	3.0%	3.0%	5.11%
% ZEVs, Year 2019	4.0%	4.0%	4.0%	7.53%
% ZEVs, Year 2020	8.0%	8.0%	8.0%	9.94%
% ZEVs, Year 2021	20.0%	15.0%	82.0%	12.35%
% ZEVs, Year 2022	35.0%	25.0%	97.0%	14.76%
% ZEVs, Year 2023	55.0%	45.0%	99.0%	17.18%
% ZEVs, Year 2024	80.0%	70.0%	99.0%	19.59%
% ZEVs, Year 2025	94.0%	95.0%	99.0%	22.00%
% ZEVs, Year 2026	97.0%	97.0%	99.0%	37.60%
% ZEVs, Year 2027	98.0%	98.0%	99.0%	53.20%
% ZEVs, Year 2028	99.0%	99.0%	99.0%	68.80%
% ZEVs, Year 2029	99.0%	99.0%	99.0%	84.40%
% ZEVs, Year 2030	99.0%	99.0%	99.0%	100.00%
% Reduction in Per-Capita Driving With Respect to Year 2005	32.0%	32.0%	0%	50.5%

A&WMA Conference & Exhibit, 2020; Paper 796315

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Car parking needs to have solar canopies, charging stations, and energy storage. This will require financing and contracting with energy districts. I hope these facts add to the reader's realization that car-parking system development and operation should NOT be done by the government and should NOT be done by those leasing or owning the parking.

Car parking is not rocket science. However, it is far beyond what most private or government operations want to do in their "spare time" We also don't have time for duplicating efforts and experimenting.

We have the technology to have a good car-parking system. I assume we have all heard of the "Internet of Things" ("IoT"). We probably know that we will soon be shopping at stores using the "Just Walk Out" system, being implemented first by Amazon. It is time for government to play a leading role in getting a "just park" car-parking system. Given our climate emergency, this needs to be done as fast as possible. Working as a satellite engineer for 36 years at Lockheed Martin, I can report that the Air Force played a central role in getting the satellites that it needed. However, the design, construction, testing, and operation was done by the private sector.

As an added consideration, the fifth attached file is the Dividend Account Parking (DAP) car-parking system resolution that has been adopted by the San Diego County Democratic Party. DAP is needed in our municipal government's Climate Action Plans (CAPs) as an enforceable measure to help achieve climate stabilization. It also needs to be incorporated into SANDAG's 5 Big Moves.

Your ATI Committee can play a leading role in getting this needed progress.

Highest regards,

Mike Bullock
1800 Bayberry Drive
Oceanside, CA 92054
760-754-8025

California Democratic Party Delegate, 76th Assembly District (author of 2 adopted resolutions and 5 Platform changes)
Elected Member of the San Diego County Democratic Party Central Committee (author of 5 adopted resolutions)

Satellite Systems Engineer, 36 years (Now Retired)
Air and Waste Management Association published and presented papers:
Author, ***The Development of California Light-Duty Vehicle (LDV) Requirements to Support Climate Stabilization: Fleet-Emission Rates & Per-Capita Driving***
Author, ***A Climate-Killing Regional Transportation Plan Winds Up in Court: Background and Remedies***
Co-author, ***A Plan to Efficiently and Conveniently Unbundle Car Parking Cost***

From: Brizuela, Claudia
To: Wallace, Mary Ann; Garver, Justin
Cc: Muto, Alyssa; French, Tanner
Subject: FW: City of San Diego"s Parking Policy Reform at Council Committee June 16th
Date: Wednesday, June 16, 2021 8:14:21 AM

Hello Mary Ann and Justin,
I wanted to forward you along commentary on our Parking Reform Item that we received.

Thank you,

Claudia Brizuela, T.E. (She Her, Hers)
Associate Traffic Engineer
City of San Diego
Mobility Department

From: Susan McNeil Schreyer <missionhillsbid@gmail.com>
Sent: Tuesday, June 15, 2021 8:28 AM
To: Brizuela, Claudia <CBrizuela@sandiego.gov>
Cc: French, Tanner <TFrench@sandiego.gov>; Muto, Alyssa <AMuto@sandiego.gov>; Bailey, Brittany <BNBailey@sandiego.gov>; Zaiser, Kohta <ZaiserK@sandiego.gov>; Bonner, Emily <EBonner@sandiego.gov>; Roy Dahl <rdahl@cox.net>; O'Neill, Jacob <JMONeill@sandiego.gov>; Gerrie Trussell <uptowngerrie@gmail.com>
Subject: Re: City of San Diego's Parking Policy Reform at Council Committee June 16th

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Good morning, Claudia, Tanner and Alyssa,

Unfortunately I will not be able to attend the Wednesday, June 16, 2021 Active Transportation and Infrastructure Committee meeting at 2pm as the Mission Hills BID board meeting and Mission Hills Parking Advisory Committee meeting create a scheduling conflict.

At its May 19, 2021 meeting, the Mission Hills Parking Advisory Committee received a presentation on Parking Changes in Business Neighborhoods, eliminating parking requirements for development in business zones, from Ms. Brizuela and Mr. French. After a robust discussion about cities with excellent alternative mobility options and fears the elimination of parking requirements will negatively impact small businesses; and, though, alternative mobility is a positive goal, the infrastructure in San Diego/Uptown does not yet exist to support the Mission Hills core business area without parking, the PAC voted 5-1 against this proposal.

Please add this perspective to those that will be expressed on June 16th at the Active Transportation and Infrastructure Committee meeting.

With thanks and appreciation,

Susan

SUSAN MCNEIL SCHREYER | EXECUTIVE DIRECTOR
Mission Hills Business Improvement District
MissionHillsBID@gmail.com
Learn more about us at MissionHillsBID.com

On Fri, Jun 11, 2021 at 12:37 PM Brizuela, Claudia <CBrizuela@sandiego.gov> wrote:

> Hello Parking Policy Stakeholders,
> I wanted to thank you again for allowing us to present our Parking Policy Reform proposal to your organization. I wanted to give you an update on our Parking Policy Reform project and inform you that our proposal will be heard this Wednesday, June 16th, at Active Transportation and Infrastructure Committee at 2pm. We would appreciate you spreading the word to other members and would like to encourage you to participate in the public process at Active Transportation and Infrastructure Committee.
> https://onbase.sandiego.gov/OnBaseAgendaOnline/Meetings/ViewMeeting?id=4454&doctype=1
> I have included the link to the agenda which has information regarding how to access the hearing via zoom and/or call in phone number. If you would like to speak on behalf of the City's proposed Parking Policy Reform please follow the steps outlined in the agenda. Information on how to submit written comment are also welcome and available. We would appreciate your support at

Active Transportation and Infrastructure Committee and will keep you informed of upcoming hearing dates.

Have a wonderful day,

Claudia Brizuela, T.E. (She Her, Hers)
Associate Traffic Engineer
City of San Diego
Mobility Department

Phone: (619) 236-6578
Sandiego.gov

Dividend-Account Parking: Feasible & Enforceable Mitigation

Updated from Air and Waste Management Association Paper 2010-A-554-AWMA

Mike R. Bullock
Satellite Systems Engineer (36 years), now retired, 1800 Bayberry Drive, Oceanside, CA 92054

ABSTRACT

Bundled-cost and *bundled-benefit* car-parking systems (generally called "free parking") are defined, showing that they are not free and that they increase the drive-alone mode, since non-drivers lose just as much money as those that use the parking.

Dividend-Account Parking (DAP) is defined as a parking system in which all of the parking spaces are *shared* by all drivers that are driving a car that is registered in the system. "Registered" means that the car can be associated with a person having an *account* in the system. The parking is *value-priced*, with an option for a *congestion pricing overlay*. The critical final feature is that the earnings (*dividends*) are given to the people, for whom the parking is built, such as employees, shoppers, residents of apartments or condominiums, students, or train riders. It is stated that this system is defined in the California Democratic Party (CDP) Platform, making it the official policy of the largest political, environmental, and public-policy-advocacy organization in California. It is also at the center of the Sierra Club's lawsuit against the San Diego County's Climate Action Plan (CAP). The court has found in multiple rulings that DAP is feasible mitigation.

Motivations for change are provided, mostly based on an Air and Waste Management Association paper, *Climate-Stabilizing California Light-Duty-Vehicle (LDV) Requirements*. The following is shown:

1. Parking reform is needed, since fleet electrification, while critically needed (ASAP), cannot, under even the most wildly-optimistic assumptions, achieve the needed GHG emission reduction, for light-duty vehicles (LDVs), soon enough to achieve climate-stabilizing targets.
2. Per-capita driving must be reduced.

It is asserted that parking reform has a large role to play.

DAP is presented as a feasible, enforceable, mitigation measure for any Climate Action Plan or for any application where sustainability is a goal.

100 word summary:

Bundled-cost and *bundled-benefit* car-parking systems (erroneously called "free") are defined, showing that they are not free and that they increase the drive-alone mode, since non-drivers lose just as much money as drivers, due to the parking.

Dividend Account Parking (DAP) is presented as a mitigation measure for any Climate Action Plan (CAP) or for any application where sustainability is a goal. The parking is shared, convenient, fully automated, and value priced with a congestion-pricing algorithm. Earnings go to those losing money because the parking is provided.

Motivations are provided, based on an Air and Waste Management Association (AWMA) paper.

Dividend-Account Parking (DAP) is defined as a parking system in which all of the parking spaces are *shared* by all drivers that are driving a car that is registered in the system. "Registered" means that the car can be associated with a person having an *account* in the system. The parking is *value-priced*, with an option for a *congestion pricing overlay*. The critical final feature is that the earnings (*dividends*) are given to the people, for whom the parking is built, such as employees, shoppers, residents of apartments or condominiums, students, or train riders. It is stated that this system is defined in the California Democratic Party (CDP) Platform, making it the official policy of the largest political, environmental, and public-policy-advocacy organization in California. It is also at the center of the Sierra Club's lawsuit against the San Diego County's Climate Action Plan (CAP). The court has found in multiple rulings that DAP is feasible mitigation.

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It is asserted that parking reform has a large role to play.

DAP is presented as a feasible, enforceable, mitigation measure for any Climate Action Plan or for any application where sustainability is a goal.

It shows documented driving reductions due to the pricing of parking. It notes that although the benefits of priced and shared parking are known, such parking has not been widely implemented, due to understandable concerns. It states that a system solution, called *Dividend-Account Parking*, can overcome these concerns, because it would be is easy to use, share, understand, and support. The system operates the parking to maximize the financial gain of those losing money because of the parking. Eight background informational items are provided, including how value-priced parking would help California achieve greenhouse gas (GHG) reduction targets. Arguments for less parking, shared parking, and priced parking are made. Barriers to progress are identified. The fair pricing of parking is described. Seven goals of *Dividend-Account Parking* are listed. Eleven definitions and concepts that define *Dividend-Account Parking* are given. This includes a method to compute a baseline price of parking and how to adjust that price instantaneously to keep the vacancy above 15%. That price adjustment implements "Congestion Pricing." This information is sufficient to support a "Request for Proposal" (RFP) process to get a *Dividend-Account Parking* design. An implementation strategy is provided.

INTRODUCTION:

It has been well established that appropriately priced parking will significantly reduce driving[1]. Most case studies presented in Table 1 are evaluations of the most general type of "car-parking cash-out": *a program that pays employees extra money each time they get to work without*

driving. They show that a price differential between using parking and not using parking will significantly reduce driving, even when transit is described as poor. Since driving *must* be reduced[2], the pricing of parking is desirable.

Shared parking is also recognized as desirable because it can sometimes result in less parking being needed.

Although the advantages of pricing and sharing parking have been recognized for many years, these practices are still rare. This paper identifies some of the reasons for this lack of progress. The pricing and sharing method of this paper has a natural transparency and ease of use that would reduce many of the concerns. This paper also suggests that those governments that have the necessary resources can take the lead role in developing and implementing the described systems. These governments will recover their investments, over time.

This paper describes how parking facilities could be tied together and operated in an optimum system, named *Dividend Account Parking (DAP)*. The description of *Dividend Account Parking (DAP)* is sufficient to support a "Request for Proposal" process, leading to full implementation.

There are two distinct parts to *Dividend Account Parking (DAP)*. The first is how to set the price. The second is how to distribute the earnings. Briefly, the earnings go to the individuals in the group for whom the parking is built.

Table 1 Eleven Cases of Pricing Impact on Parking Demand

Location	Number of Workers @ Number of Firms	1995 $'s Per Mo.	Parking Use Decrease
Group A: Areas with poor public transportation			
West Los Angeles	3500 @ 100+	$81	15%
Cornell University, Ithaca, NY	9000 Faculty & Staff	$34	26%
San Fernando Valley, Los Angeles	850 @ 1	$37	30%
Costa Mesa, CA	Not Shown	$37	22%
Average for Group		**$47**	**23%**
Group B: Areas with fair public transportation			
Los Angeles Civic Center	10,000+ @ "Several"	$125	36%
Mid-Wilshire Blvd, Los Angeles	1 "Mid-Size" Firm	$89	38%
Washington DC Suburbs	5,500 @ 3	$68	26%
Downtown Los Angeles	5,000 @ 118	$126	25%
Average for Group		**$102**	**31%**
Group C: Areas with good public transportation			
U. of Washington, Seattle, WA	50,000 employees, students	$18	24%
Downtown Ottawa, Canada	3,500 government staff	$72	18%
Bellevue, WA	430 @ 1	$54	39%*
Average for Group, except Bellevue, WA Case*		**$45**	**21%**
Overall Average, Excluding Bellevue, WA Case*			**25%**

* Bellevue, WA case was not used in the averages because its walk/bike facilities also improved and those improvements could have caused part of the decrease in driving.

PERTINENT BACKGROUND INFORMATION

- Vehicle miles traveled (VMT) are a major cause of global warming and pollution[2, 3].
- California's Metropolitan Planning Organizations (MPOs) will need to adopt strategies that reduce vehicle miles traveled (VMT), in order to meet SB375 GHG reduction targets, to be issued by the California Air Resources Board in late 2010, for years 2020 and 2035[2].
- The appropriate pricing of parking is one of the least costly documented tools to reduce VMT.
- New technologies, such as sensors feeding computer-generated billing, offer the potential to efficiently bill drivers for parking and alert law enforcement of trespassers.
- Reformed parking policies can increase fairness, so that, for example, people who use transit or walk do not have to pay higher prices or suffer reduced wages, due to parking.
- Methods to unbundle parking cost are inefficient unless they support the spontaneous sharing of parking spaces. Shared parking with unbundled cost would ultimately allow cities to require significantly less parking.
- Typical systems of timed parking and metered parking are far from ideal. Parking has no automated record keeping, so it is difficult to know where there is too much or too little.
- Good policies will eventually let cities turn parking minimums into parking maximums.

A GLIMPSE INTO A POSSIBLE FUTURE

Jason is driving to work for the first time in several years. He has decided to save money by carrying home a new 3-D, big-screen computer, which he plans to purchase at a store near his office after work. He wanted to avoid paying delivery charges.

Things have been changing around his office development since they unbundled the cost of parking at the near-by train station. Many people who caught the early trains and lived close to the station stopped driving and parking in the best parking spaces; demand for housing close to the station went up; and wealthy riders, who insisted on driving, did so, confidant that they could always find parking as close to the platform as their schedules required, due to congestion pricing. Who would have guessed how much those people were willing to pay? It was shocking. Parking-lot earnings, paid to round-trip train riders, meant that the net cost to ride the train went significantly down. Ridership and neighborhood vitality both went significantly up. All Jason knew was that the price to park at his office had been going up yearly because of increased land values. His parking-lot earnings from his office had been increasing almost every month, due to the ripple effect of train riders parking off-site at cheaper parking. Some of them were using his office parking.

As he pulls out of his driveway, he tells his GPS navigation unit his work hours (it already knew his office location), the location of the store where he plans to buy the computer, and his estimated arrival and departure times at the store. He tells the GPS unit he wants to park once, park no more than 1 block from the store, walk no more than 1 mile total, and pay no more than an average of $2 per hour to park. He is not surprised to hear the GPS tell him that his request is

impossible. He tells the GPS he will pay an average of $3 per hour and learns that the GPS has located parking.

It guides him into a church parking lot. He hopes the church will use his money wisely. The GPS tells him the location of a bus stop he could use to get to work and the bus's next arrival time at the stop. With automatic passenger identification and billing, the bus has become easy to use, except that it is often crowded. Jason gets out of the car and walks to work, with no action required regarding the parking.

Three weeks later, when Jason gets his monthly statement for his charges and income for automotive road use, transit use, parking charges, and parking earnings, he finds that the day's parking did indeed cost about $30 for the 10 total hours that he parked. He notes that the parking-lot earnings for his office parking averaged about $10 per day that month. He then notices the parking lot earnings from the store, where he spent about $1000 dollars. He sees that the parking-lot earnings percent for the store that month was 1.7%, giving him about $17. So for the day, Jason only spent a net of about $3 on parking. Then he realized that he should have had the computer delivered after all. If he would have bicycled that day, as he usually did, he would have still gotten the $27 earnings from the two parking facilities and he would have paid nothing for parking. So the choice to drive cost him $30. He remembers that the delivery would have only been $25 dollars. Oh well. He enjoyed his before-work and after-work walks.

THE CASE FOR LESS PARKING

Less parking will support more compact development.[1] This makes walking and biking more enjoyable and less time consuming. There would certainly be less "dead space", which is how parking lots feel to people, whether they arrive by car or not, after they become pedestrians.

Since parking can be expensive, less parking can reduce overhead costs significantly, such as leasing expense and parking-lot maintenance cost. Less overhead means more profit and less expense for everyone. A need for less parking can create redevelopment opportunities at existing developments and reduce project cost at new developments.

At new developments, car-parking costs could prevent a project from getting built.[2]

THE CASE FOR SHARED PARKING

Shared parking for mixed uses means that less parking is needed. For example, shared parking could be used mostly by employees during the day and mostly by residents at night.

Fully shared parking means that very little parking would be off limits to anyone. In a central business district with shared parking, drivers would be more likely to park one time per visit, even when going to several locations. Pedestrian activity adds vitality to any area.

THE CASE FOR APPROPRIATELY-PRICED PARKING

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[1] This is especially true of surface parking, which only accommodates 120 cars per acre.

[2] On September 23, 2008, a panel of developers reviewed the Oceanside, Ca. "Coast Highway Vision" http://www.ci.oceanside.ca.us/pdf/chv_finalvisionstrategicplan.pdf. Parts of this plan were described as smart growth.

At the review, developer Tom Wiegel said, "Parking is the number 1 reason to do nothing," where "do nothing" meant "build no project." The other developers at the meeting agreed.

To Reduce Driving Relative to Zero Pricing

Traditional Charging or Paying Cash-out Payments

As shown in the Introduction, this relationship (pricing parking reduces driving) is not new.[3]

Using results like Table 1, at least one study[4] has used an assumption of widespread pricing to show how driving reductions could help meet greenhouse gas (GHG) target reductions. Dr. Silva Send of EPIC http://www.sandiego.edu/epic/ghgpolicy/ assumes that all work locations with 100 employees or more in San Diego County will implement cash-out, to result in 12% less driving to work. Currently, almost all employees in San Diego County "park for free", unless they happen to work in a downtown core area.

Current, Best-Practice "Unbundling"

The "best-practice" use of the phrase, "unbundled parking cost", is to describe the case where either the cost of parking, for the case of a condominium, or the rent for parking, for the case of an apartment, is separated from either the purchase price and common fees or the rent of the dwelling unit.

This gives the resident families the choice of selecting the number of parking spaces they would like to rent or buy, including the choice of zero. This would tend to reduce the average number of cars owned per dwelling unit and, in this way, would also tend to reduce driving. Its major drawback is that this method does not encourage sharing.

To Increase Fairness and Protect the US Economy

It is stated above that almost all employees in San Diego County "park for free". Of course there is really no such thing as "parking for free". So-called "free parking" always reduces wages or increases costs. At a work site, it reduces everyone's wage, even those employees that never drive. At an apartment complex, so-called "free parking" increases the rent. Therefore, "free parking" at work or at apartments violates the fundamental rule of the free market, which is that people should pay for what they use and not be forced to pay for what they do not use. Parking should at least be priced to achieve fairness to non-drivers.

The US economy would also benefit. Reductions in driving would lead to reductions in oil imports, which would reduce the US trade deficit.[4]

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[3] For many years the Victoria Transport Policy Institute (VTPI) has been recognized as a source of reliable information on "Transportation Demand Management", or TDM.

From http://www.vtpi.org/tdm/tdm72.htm#_Price_Parking:

> Even a relatively small parking fee can cause significant travel impacts and provide significant TDM benefits.

"TDM Benefits" refers to the many public and private benefits of having fewer people choosing to drive.

[4] From http://en.wikipedia.org/wiki/Balance_of_trade#Warren_Buffett_on_trade_deficits, Warren Buffet wrote in 2006,

> "The U.S. trade deficit is a bigger threat to the domestic economy than either the federal budget deficit or consumer debt and could lead to political turmoil. Right now, the rest of the world owns $3 trillion more of us than we own of them."

BARRIERS TO PROGRESS

Given all this, it might seem that the widespread pricing of parking should have happened by now. However there are barriers. In 2007, a majority of the City Council of Cupertino, Ca. indicated that they wanted their City Manger to negotiate reduced parking requirements with any company that would agree to pay sufficient cash-out payments. To this date, no company, including Apple Inc., has expressed an interest. Most companies probably perceive cash-out as expensive. Even if they realize they could get a reduced parking requirement in exchange for paying sufficient cash-out amounts and even if the economics worked in support of this action (quite possible where land is expensive), they want to stay focused on their core business, instead of getting involved in new approaches to parking, real estate, and redevelopment.

On the other hand, simply charging for parking and then giving all the employees a pay raise is probably going to run into opposition from the employees, who will feel that they would be losing a useful benefit.

In addition, neighbors fear the intrusion of parked cars on their streets. Permit parking, which could offer protection, is not always embraced. City Council members know that a sizable fraction of voting citizens believe that there can actually never be too much "free parking", Professor Shoup's famous book[5] notwithstanding. Some Council members probably feel that way themselves.

It doesn't help that current methods of charging for downtown parking are often very inefficient.[5] For example, downtown Oceanside, California has parking meters that will only accept coins. Besides this, all their on-street, downtown parking is timed, with maximums from 10 minutes to 4 hours. These time limits are enforced by a city employee, who applies chalk from a tire to the street and then records the time. However, by watching the time and moving their car soon enough, drivers can avoid getting a ticket. Of course, they could instead drive to the mall and not have to worry about having coins or elapsed time since parking. It is not surprising that downtown merchants often object to charging for parking.

In summary, those that resist charging for parking, *based on their perceptions*, include

- Companies, *who fear the complexity and expense of paying cash-out payments*;
- Employees, *who fear losing a current benefit*;
- City leaders, *who fear the political repercussions*;
- Downtown patrons, *who dislike the inconvenience and worry*;
- Downtown business owners, *who fear that it will drive away customers*.

THE COST, VALUE, AND FAIR PRICE OF PARKING

Estimated and Actual Capital Cost

Surface Parking

One acre of surface parking will accommodate 120 cars. Land zoned for mixed use is sometimes expensive. At $1.2 million per acre, the land for a single parking space costs $10,000. Construction cost should be added to this to get the actual, as-built cost of each parking space.

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[5] According to Bern Grush, Chief Scientist of Skymeter Corporation http://www.skymetercorp.com/cms/index.php, often two-thirds of the money collected from parking meters is used for collection and enforcement costs.

Estimated cost can be determined by using appraised land value and construction estimates. For new developments, after the parking is constructed, it is important to note the actual, as-built cost.

Parking-Garage Parking

One acre of parking-garage will accommodate considerably more than 120 cars. The construction cost of the garage and the value of its land can be added together to get the total cost. Dividing that total cost by the number of parking spaces yields the total, as-built cost of each parking space. Adding levels to a parking garage may seem like a way to cut the cost of each parking space, for the case of expensive land. However, there is a limit to the usefulness of this strategy because the taller the parking garage, the more massive the supporting structural members must be on the lower levels, which increases total cost. Parking-garage parking spaces are often said to cost between $20,000 and $40,000. The actual costs should be noted.

Underground Parking

In order to compute an estimate for the cost of a parking space that is under a building, it is necessary to get an estimate of the building cost with and without the underground parking. The difference, divided by the number of parking spaces, yields the cost of each parking space. The cost or value of land plays no role in the cost of this parking. However, it does not follow that this parking is cheap. Underground parking spaces are often said to cost between $60,000 and $90,000 dollars each. Although there will be an “as built” cost of the building with the parking, there will never be an “as built” cost of the building without the parking. However, after the construction is done, the estimate for the cost of the underground parking should be reconsidered and re-estimated if that is needed. The final, best-estimate cost should be noted.

Value

Initially, value and cost are the same. For surface parking and parking-garage parking, the value would initially be the same as the as-built cost. For underground parking, the value would initially be the same as the best-estimate cost. However, over time, the value must be updated. Both construction costs and land-value costs will change. The value assigned to a parking place should always be based on the current conditions.

Fair Pricing

Parking space “values”, as described above, must first be converted to a yearly price by using a reasonable conversion factor. This conversion factor could be based on either the “cost of money” or the “earnings potential of money”. It is expected that this conversion factor would be 2% to 5% during times of low interest rates and slow growth; but could be over 10% during times of high-interest and high growth. For example, if the surface parking value is $12,000 and it is agreed upon to use 5% as the conversion factor, then each parking spot should generate $600 per year, just to cover capital costs. The amount needed for operations, collection, maintenance, depreciation, and any special applicable tax is then added to the amount that covers capital cost. This sum is the amount that needs to be generated in a year, by the parking space.

The yearly amount of money to cover capital cost needs to be re-calculated every year or so, since both the value and the conversion factor will, in general, change each year. The cost of operations, collection, maintenance, depreciation, and any special applicable tax will also need to be reconsidered.

Once the amount generated per year is known, the base price, per unit year, can be computed by dividing it (the amount generated per year) by the estimated fraction of time that the space will

be occupied, over a year. For example, if a parking space needs to generate $900 per year but it will only be occupied 50% of the time, the time rate charge is $1800 per year. This charge rate per year can then be converted to an hourly or even a per-minute rate. The estimated fraction of time that the parking is occupied over a year will need to be reconsidered at least yearly.

NEW DEFINITIONS TO PROMOTE AN OBJECTIVE VIEW OF PRICING

- The "fair price" means the price that accounts for all costs.
- The "baseline amount of driving" means the driving that results from the application of the fair price.
- "Zero transportation demand management" ("zero TDM") is the amount of demand management that results when the fair price is used. It will result in the baseline amount of driving.
- "Negative TDM" refers to the case where the price is set below the fair price. This will cause driving to exceed the baseline amount. Since TDM is commonly thought to be an action that reduces driving, it follows that negative TDM would have the opposite effect.
- "Positive TDM" refers to the case where the price is set above the fair price. This would cause the amount of driving to fall below the baseline amount.

Clearly, so-called "free parking" is an extreme case of negative TDM. The only way to further encourage driving would be to have a system that pays a driver for the time their car is parked.

GOALS OF THE "DIVIDEND ACCOUNT PARKING" CAR-PARKING SYSTEM (FORMERLY "*INTELLIGENT PARKING")*

- There is only one third-party vendor (or several, collaborating so closely that users are unaffected compared to a single operator) operating all parking. ("All parking" does not include driveways and garages in single-family homes.) *Dividend Account Parking* is designed and installed by regional or state government, using low-bid contractors, with design and start-up costs covered by the overhead portion of collection fees.
- Nearly all parking is shared. Almost always, anyone can park anywhere. Those who want exclusive rights to parking will pay "24/7" (all day, every day).
- Parking is operated so that the potential users of parking will escape the expense of parking by choosing to not use the parking. This characteristic is named "unbundled" because the cost of parking is effectively unbundled from other costs.
- Parking is priced and marketed to eliminate the need to drive around looking for parking.
- Parking at any desired price is made as easy as possible to find and use.
- Records of the use of each parking space are kept, to facilitate decisions to either add or subtract parking spaces.
- The special needs of disabled drivers, the privacy of all drivers, and, if desired, the economic interests of low-income drivers are protected.

DEFINITIONS & CONCEPTS OF *DIVIDEND ACCOUNT PARKING (DAP)*

Parking Beneficiary Groups

There are at least 7 types of beneficiary groups. Note that in all cases, members of beneficiary groups must be old enough to drive.

1.) People who have already paid for the capital cost of parking. An example of this type of beneficiary group would be the owners of condominiums, where parking has been built and the cost is included in the price of the condominium. Note that although they have technically already paid for the parking, if they borrowed money to pay for some portion of the price, the cost is built into their monthly payment. This illustrates why the value of parking and the cost of borrowing money (rate of return on money) are key input variables to use to compute the appropriate base, hourly charge for parking.

2.) People who are incurring on-going costs of parking. An example of this type of beneficiary group is a set of office workers, where the cost of 'their" parking is contained in either the building lease or the cost of the building. Either way, the parking costs are reducing the wages that can be paid to these employees.[6]

3.) People who are purchasing or renting something where the cost of the parking is included in the price. Examples of this beneficiary group are people that rent hotel rooms, rent an apartment, buy items, or dine in establishments that have parking.

4.) People who own off-street parking as a business. They could be the individual investors or could be a government or government-formed entity.

5.) People who are said to benefit from parking, even though the money for the parking has been supplied by a source that may have very little relationship to those that are said to benefit. An example of this group would be train riders that make round trips from a station which has parking that is said to be "for riders". Students at a school with parking would be another example.

6.) People who are considered by many to be the logical beneficiaries of on-street parking. Owners of single-family homes are the beneficiaries of the parking that is along the boundaries of their property. The same status is given to residents of multi-family housing.

7.) Governments. Since they build and maintain the streets, they should get a significant benefit from on-street parking.

Unbundled Cost and Spontaneous Sharing

"Unbundled cost" means those who use the parking can see exactly what it costs and those who don't use the parking will either avoid its cost entirely or will get earnings to make up for the hidden parking cost they had to pay. This conforms to the usual rule of the free market where a person only pays for what they choose to use. Unbundled cost is fair.

"Spontaneous sharing" means that anyone can park anywhere at any time and for any length of time. Proper pricing makes this feasible.

How to Unbundle

The method of unbundling can be simply stated, using the concept of "beneficiary group" as discussed above. First, the fair price for the parking is charged. The resulting earnings[7] amount is

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[6] Such parking is often said to be "for the benefit of the employees". Defining this beneficiary group will tend to make this statement true, as opposed to the common situation where the employees benefit only in proportion to their use of the parking.

[7] The earnings amount is the revenue collected minus the collection cost and any other costs that will have to be paid due to the implementation of *Dividend Account Parking (DAP)*. The costs associated with the parking, paid *before*

given to the members of the beneficiary group in a manner that is fair to each member. Methods are described below.

Why this Supports Sharing

Members of a beneficiary group benefit financially when "their" parking is used. They will appreciate users increasing their earnings. They are also not obligated to park in "their" parking. If there is less-expensive parking within a reasonable distance, they might park there, to save money. This is fine, because all parking is included in the *Dividend Account Parking (DAP)* system.

Computing the Earnings for Individuals

Dividend Account Parking (DAP) must be rigorous in paying out earnings[7]. For a mixed use, the total number of parking spaces must first be allocated to the various beneficiary groups. For example in an office/housing complex, 63.5% of the parking might have been sold with the office. If so, the housing portion must be paying for the other 36.5%. For this case, it would follow that the first step is to allocate 63.5% of the earnings to the workers and 36.5% to the residents.

How the monthly earnings are divided up among the members of the beneficiary group depends on the beneficiary group type. For each member, the group's total monthly earnings amount is always multiplied by a quantity and divided by the sum (the sum is the denominator) of that quantity, for all members.

For example, for each employee, the multiplier is the number of hours that the employee worked over the month while the denominator is the total number of hours worked by all employees over the month. At a school, for each student, the numerator is the total time spent at the school, over the month, while the denominator is the sum of the same quantity, for all the students.

For a train station with parking being supplied for passengers that ride on round trips of one day or less, the numerator is the passenger's monthly hours spent on such round trips, over the month; while the denominator is the total number of hours spent by all passengers on such round trips, over the month. Radio Frequency Identification (RFID) units on passengers could support an automated calculation of monthly charges for fares, as well as monthly hours on round trips.

At a shopping center, the numerator is the sum of the money spent by the shopper, over the month, while the denominator is the total amount of money spent by all shoppers over the month.

At a condominium, the numerator is the number of parking places that were paid for (directly or indirectly) by the resident family and the denominator is the total number of parking places at the condominium project; similarly, for apartment complexes.

Where Earnings Are Low

The goal is that if someone doesn't park, they don't pay, either directly or indirectly, because the earnings that they get will balance out their losses (like reduced wages, for example). However, charging for parking that few want to use will not sufficiently compensate the people that have been forced, or are being forced, to pay for such parking. The only remedy in this case is to redevelop the parking or lease the parking in some other way, for storage, for example. The

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the implementation of *Dividend Account Parking (DAP)*, should *not* be subtracted from the revenue because they will continue to be paid as they were before the implementation of *Dividend Account Parking (DAP)*. Therefore, these costs will continue to reduce wages and increase the prices of goods and services.

earnings from the new use should go to those that are in the beneficiary group that was associated with the low-performing parking.

Why This Method of Unbundling Will Feel Familiar to Leaders

Developers will still be required to provide parking and will still pass this cost on, as has been discussed. There will be no need to force an owner of an exiting office with parking to break his single business into two separate businesses (office and parking).

Parking beneficiaries are identified that conform to traditional ideas about who should benefit from parking.[8]

Unbundling the Cost of On-Street Parking

The revenue from on-street parking in front of businesses will be split evenly between the city and the business's parking beneficiaries. All of the earnings from on-street parking in front of apartments or single-family homes will be given to the resident families.[9]

Special Considerations for Condominiums

Unbundling for a condominium owner means that, although their allocated amount of parking has added to their initial cost, their allocated amount of parking also earns money for them. Unbundling for a condominium could also mean that an owner can choose to have control over a single or several parking places. Such parking spaces could be equipped with a red light and a green light. If the red light is lit, this will mean that the space is not available for parking, except for the person who is controlling the spot. If the green light is lit, it will mean that the space is available to anyone. A space that is being reserved with a red light is charged at the full price to the condominium owner that has control over the space. The owner that controls these spaces can change the state of the parking space (available or not available) by either a phone call, on line, or at any pay station system that might be in use for the system. After condominium owners experience the cost of reserving a space for themselves, they might give up on the idea of having their own, personal, unshared parking space; especially since *Dividend Account Parking (DAP)* will give most owners and their guests all the flexibility they need in terms of parking their cars.

Some people think that condominium parking should be gated, for security reasons. However, parking within parking garages needs to be patrolled at the same frequency level as on-street parking, which is enough to ensure that crime around either type of parking is very rare. Cameras can help make parking garages that are open to the public safe from criminal activity.

Special Considerations for Renters

Unbundling for renters means that, although their allocated amount of parking increases their rent, their allocated amount of parking also earns money for them. Therefore, their traditional rent (includes parking) is effectively reduced by the money earned by those parking spaces allocated to them. Renters will be motivated to either not own a car or to park in a cheaper

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[8] Showing exactly where parking earnings go will reduce the political difficulties of adopting pay parking in a democracy where the high cost of parking is often hidden and rarely discussed.

[9] Although governments own the streets, often, back in history, developers paid for them and this cost became embedded in property values. Admittedly, how to allocate on-street parking earnings is somewhat arbitrary. With congestion pricing and efficient methods, governments may earn significantly more than they are under current practices.

location. Parking in a cheaper location is not a problem because all parking is part of the *Dividend Account Parking (DAP)* system. Renters will welcome anyone to park in "their" parking, because it will increase their earnings.

Special Considerations for Employers

At first, companies may want the option of offering "free parking" to their employees so as to be able to compete with traditional job sites. This means giving employees that drive every single day an "add-in" amount of pay so that the sum of the add-in and their parking-lot earnings equals their charge, for any given monthly statement. The operator of the parking, which sends out statements, can pay out the "add in" amount, in accordance with the company's instruction. The company will then be billed for these amounts. There could be no requirement for the company to provide any such "add-in" amount to the employees that don't drive every day. This would allow the company to treat its every-day drivers better than other employees and so this would be a negative TDM. However, this economic discrimination would be substantially less than the current, status-quo, economic discrimination, where drivers get "free" parking and non-drivers get nothing.

Clusters of Parking

Clusters are a contiguous set of parking spaces that are nearly equal in desirability and thus can be assigned the same price. They should probably consist of from 20 to 40 spaces. For off-street parking, they could be on either side of the access lane to the parking spaces, so that an observer could see the 20 to 40 cars, and get a feel for the vacancy rate. At a train station, clusters will normally be organized so that their parking spaces are approximately an equal distance from the boarding area. On-street clusters would normally conform to our current understanding of what a block is, which is to say from one cross street to the next cross street. The width of the street and the length of the block should be taken into account in defining on-street clusters of parking and in deciding if the parking on either side of the street should or should not be in the same cluster of parking spaces.

Examples of Good and Bad Technology

Parking Meters or Pay Stations

Parking meters are a relic of an earlier period, before computers. Pay stations do not add enough usefulness to merit their inclusion in *Dividend Account Parking (DAP)*, except as a bridge technology. Once good systems are set up, pay stations should cost additional money to use because of their expense. It would be best to devise an implementation strategy that will minimize their use when the system is first put into effect and will take them out of service as soon as possible.

Radio Frequency Identification Backed Up by Video-Based "Car Present" and License Recognition

Government will eventually enter into an RFID (Radio Frequency Identification) age. Organizers of large athletic events already have. Organizers that put on large open-water swims, foot races, and bike rides have routinely used RFID for many years.[10] An RFID vendor in San Diego[11]

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[10] For example, over 20,000 people ran the 2008 Bay-to-Breakers foot race in San Francisco. Each runner had a "chip" in their shoe lace. Each runner's start time and finish time were recorded and all results were available as soon as the last runner crossed the finish line.

states that passive RFID units cost less than $5, are reliable, are durable, and they could be used to identify cars as well as people. He also sees no problem in implementing most of the features of *Dividend Account Parking (DAP)*.[12]

Automatic Data Collection and Sending Out Statements

Note that the "back end database" of Dr. Carta's written statement[12] refers to the ability to send statements of earnings and billing to students.[13]

Putting it Together

Certainly, government, and in particular transit agencies and parking agencies, could use RFID-based technology. For example, when a person with an RFID unit which is tied to a billable address or a credit card with an open account gets on a bus or a train, they should not have to pay at that time, visit a pay station, or "swipe a card" that has a positive balance. Utility customers that pay their bills are not required to pre-pay. The same courtesy should be extended to transit riders, people that drive on roads, people that get parking-lot earnings, and people that park cars. There should be one monthly bill or statement, for all four activities.

Global Positioning Systems GPS

An alternative model is to have GPS systems in cars that would detect the car's parking location, that location's current charge rate, and would perform all of the charging functions in the car. The only information the parking-lot-enforcement system would need is whether or not a car being parked is owned by a bill-paying owner. The car owner's responsibility would be to pay the bills indicated by the box in the car. The box would need to process a signal that a bill had been paid. It would also need to process pricing signals.

Not Picking Winners

The purpose of this report is to describe what an ideal system would do, *not* how it is done. How a proposed system works is left to the systems, software, and hardware engineers that work together to submit a proposal based on this description of what an ideal system does.

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[11]David R. Carta, PhD, CEO Telaeris Inc., 858-449-3454

[12] Concerning a Final Environmental Impact Report-approved and funded new high school in Carlsbad, California, where the School Board has signed a *Settlement Agreement* to consider "*unbundled parking*", "*cash-out*", and "*pricing*", Dr. Carta wrote, in a January 13th, 2010 written statement to the Board,

> I wanted to send a quick note discussing the technical feasibility of tracking cars into a lot without impacting students or requiring the need for gates. Mike Bullock and I have discussed this project; it can be accomplished straightforwardly by utilizing Radio Frequency Identification and/or Video Cameras integrated with automated license recognition systems. The cars would need to register with the system at the start, but it would be fairly painless for the users after the initial installation. The back end database system can also be implemented both straightforwardly and at a reasonable price.
>
> This is not necessarily a recommendation of the proposal for unbundled parking. Rather it is strictly an unbiased view of the technical feasibility of the proposal to easily and unobtrusively track cars, both registered and unregistered, into a fixed lot.

[13] In an earlier email on this subject, Dr. Carta wrote,

> This is not too tough - we probably would integrate with a service that already sends physical mail from an electronic submission instead of re-inventing this wheel.

Privacy

Privacy means that no one can see where someone has parked, without a search warrant. Also, the level of the detail of information that appears on a bill is selected by the customer.[14]

Ease of Use for Drivers

For credit-worthy drivers that have followed the rules of the system, pay parking will not require any actions other than parking. Paying for all parking fees over a month is then done in response to a monthly billing statement. Parking will feel to the consumer like a service provided by a municipality, such as water, energy, or garbage. One important difference is that users belonging to a "beneficiary group" will get an earnings amount in their monthly statement. Those that earn more than what they are charged will receive a check for the difference. This ease of use will make all parking less stressful.

Base Price

Off-Street

Off-street parking is priced so that even if demand does not threaten to fill the parking beyond 85%, the money generated will at least equate to an agreed-upon return on the parking value and pay all yearly costs. Equation 1 shows the calculation of the hourly rate.

$$r_{BaselineHourly} = \frac{(r_{Investment} \times v_{Parking}) + c_{YOPD}}{(n_{HoursPerYear} \times f_{TO})} \quad \textbf{(Eq. 1)}$$

where:

$r_{BaselineHourly}$	=	the computed baseline hourly rate to park
$r_{Investment}$	=	yearly return on investment, such as .06
$v_{Parking}$	=	value of a parking space, such as (parking garage) $40,000
c_{YOPD}	=	yearly operations[15] plus depreciation, per space, such as $100
$n_{HoursPerYear}$	=	number of hours per year, 24 x 365 = 8760 Hours per Year
f_{TO}	=	fraction of time occupied, such as 0.55.

For the example values given, the base hourly rate of parking, to cover the cost of the investment, operations[15], and depreciation is $0.519 per hour. This could be rounded up to $0.52 per hour. This price could also be increased to result in positive TDM, to reduce driving more than the fair-price, zero-TDM amount.

On-Street

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[14] License plates that have no RFID tags fail to use the best technology to accomplish the primary purpose of license plates, which is to identify and help intercept cars used in a crime. Identifying cars is a legitimate government goal. Protecting privacy is also a legitimate goal. Both goals can be realized with good laws, good enforcement, and good systems engineering.

[15] This includes money for policing, cleaning, maintenance, any applicable parking tax, and all collection costs. Collection costs will need to include an amount to recover the development and installation costs of *Dividend Account Parking (DAP)*.

If on-street parking is located within walking distance (one-quarter mile) of off-street parking, its base price is set equal to the closest off-street parking's base price. Otherwise, it is set to some agreed-upon value, like fifty cents per hour. However, on-street parking has a special meaning for downtown merchants and for neighborhoods, two powerful political forces in any city. Merchants that have few cars parking on their street, even though it is permitted, are probably failing in their businesses. They would like free parking to help draw visitors to their store front. Neighborhoods that are not impacted by parking would probably prefer no pricing. For these reasons, for any on-street parking cluster, no price is charged until the cluster occupancy reaches 50%. (Time of day is irrelevant.)

Congestion Pricing

The time-rate price of parking is dynamically set on each cluster of parking, to prevent the occupancy rate from exceeding 85% (to reduce the need to drive around looking for parking). An 85% occupancy rate (15% vacancy) results in just over one vacant parking space per city block[5]. If the vacancy rate is above 30%, the price is left at the baseline hourly rate. If vacancies fall below 30%, the price can be calculated in a stair-step method, such as shown in Table 2.

Equation 2 is an alternative method.

In either case, the total charge is time parked, multiplied by the time-averaged, time-rate price. The base multiplier would be adjusted to be just large enough to keep the vacancy rate from falling below a desired level, such as 15%, so it is always easy to find parking.

Table 2 Hourly Rates for 2 Base Multipliers and a Baseline Hourly Rate of $0.52

Vacancy Rate	Base Multiplier = 2			Base Multiplier = 2.5		
	Multiplication		Hourly Rate	Multiplication		Hourly Rate
	Formula	Value		Formula	Value	
Above 30%	2^0	1	$0.52	2.5^0	1	$0.52
25% to 30%	2^1	2	$1.04	2.5^1	2.5	$1.30
20% to 25%	2^2	4	$2.08	2.5^2	6.25	$3.25
15% to 20%	2^3	8	$4.16	2.5^3	15.625	$8.13
10% to 15%	2^4	16	$8.32	2.5^4	39.0625	$20.31
5% to 10%	2^5	32	$16.64	2.5^5	97.6563	$50.78
Below 5%	2^6	64	$33.28	2.5^6	244.1406	$126.95

$$r_{HourlyRate} = r_{BaselineHourly} \times \left(B^{(30-V)/5}\right), for\ V < 30;\ r_{BaslineHourly}, otherwise \quad \textbf{(Eq. 2)}$$

where:

$r_{HourlyRate}$ = the congestion-priced hourly rate to park

$r_{BaselineHourly}$ = the baseline hourly rate to park, such as $0.52 per hour (taken from from Eq. 1.

B = the base of the multiplier being computed, such as 2.50

V = the vacancy rate percent, such as 17.5, for 7 vacancies in a cluster of 40 spaces, 100*(7/40) = 17.5

For the example values given, the hourly rate of parking would be $9.88 per hour.

Pricing Predictions and Notifications

Drivers will develop strategies for their routine trips. The computer system that keeps records of parking use will also provide help for users. The *Dividend Account Parking (DAP)* website will direct a user to an appropriate cluster of parking if the user provides the destination location or locations, the time and date, and the hourly rate they wish to pay. If the walk is going to be long, the website could suggest using transit to get from the cheaply-priced parking to the destination. In such cases, the website may also suggest using transit for the entire trip.

Another user option is to specify the time, location, and the distance the user is willing to walk. In this case, the computer would give the cheapest cluster of parking available at the specified walk distance. The price prediction would be provided.

All price predictions would also have a probability of correctness associated with them. If a user can show that a computer has predicted a much lower price than what actually occurred, with a sufficiently high probability, it would be reasonable to charge the user the predicted price rather than the actual price.

Websites could routinely inform viewers when occupancy rates are expected to be unusually high, due to a special event (for example, a sporting event). The parking system website will always give current and predicted hourly rates for all locations. The hourly rates of parking will also be available at a phone number and possibly at pay stations. The base-price hourly rate, for any parking cluster, would be stable and could therefore be shown on signs. Parking garage entrances could have large video screens showing both predicted and existing price. Users will also learn to look at parking and judge whether congestion pricing applies, or could apply, while their car is parked. It would not be long before these capabilities are added into GPS navigation systems.

Prepaid RFID

To be inclusive, pay stations or convenience stores will offer a pre-paid RFID that can be set on the dashboard of a car. This will support drivers with poor credit or drivers who have not obtained the necessary equipment to support the normal, trouble-free methods. This will also work for drivers that do not trust the system to protect their privacy for a certain trip (by removing or disabling the permanent RFID) or for all trips. No billing would occur.

Enforcement

The system would notify the appropriate law enforcement agency if an unauthorized car was parked. Authorized cars would need either a pre-paid RFID or equipment indicating that their owners had *Dividend Account Parking (DAP)* accounts and were sufficiently paid up on their bills.

IMPLEMENTATION

This description of *Dividend Account Parking (DAP)* will help to implement efficient parking systems. Parking at train stations, schools, and government buildings could introduce many of these concepts. This description of *Dividend Account Parking (DAP)* is sufficient to support a "Request for Proposal" process, which could lead to full implementation. Widespread

installation should be done by a government agency, to minimize actions required on the part of the private sector. Laws would simply require the cooperation of all private-sector and government entities.

SUMMARY

A parking plan, *Dividend Account Parking (DAP)* has been described.

1. Technology will make it easy to use for most drivers.
2. Its parking is almost always shared, to support mixed uses.
3. It unbundles cost by charging and having earnings go to the parking beneficiaries.
4. Traditional groups, such as single-family home owners, employees, tenants, train riders, and students benefit from parking. The benefit is equal for drivers and non-drivers.
5. Baseline prices are computed primarily from the value of the parking and an agreed-upon rate of return. On-street parking is free until it is half full, at which time its base price often matches that of the closest off-street parking.
6. For all parking, price is dynamically increased to guarantee availability. Earnings are therefore only limited by what people are willing to pay.
7. Technology helps drivers find parking and decide if they want to drive or use transit.
8. Prepaid RFIDs provide service to those who have poor credit or don't want to be billed.
9. Disabled and perhaps low-income drivers will have accounts that allow them to park at reduced prices and perhaps avoid congestion pricing. Specially designated spots might also be required for disabled drivers.
10. The system will provide reports showing where additional parking would be a good investment and where it would be wise to convert existing parking to some other use.
11. Privacy will be protected. Law enforcement officials would need a search warrant to see where someone's car has been parked. The level of detail on billing would be selected by the car's owner.
12. Implementations could begin in carefully selected locations and expand.

Global warming, air pollution, trade deficits, and fairness are some of the significant reasons that governments have a responsibility to implement *Dividend Account Parking (DAP)*.

ACKNOWLEGEMENTS

The following people have offered encouragement, specific information, and/or special insights.

Dr. Dennis Martinek, Oceanside Planning Commissioner; Sandra Goldberg, California Deputy Attorney General; Jerry Kern, Oceanside, City Council; Amy Volzke, Principal Planner, City of Oceanside; Dr. Nilmini Silva-Send, Senior Policy Analyst of the Energy Policy Initiative Center; Diane Nygaard, Director of Preserve Calavera and founder of Nelson Nygaard, Consulting Associates; Lisa Rodman, Trustee, Carlsbad Unified School District; Dr. Michael McQuary, President, La Jolla Democratic Club; Joan Bullock; Judy Jones, San Diego County Central Committee, California Democratic Party; Patrick Siegman, Principal and Shareholder, Nelson Nygaard; Andy Hamilton, San Diego Air Pollution Control District; Renee Owens, Conservation Chair, San Diego Sierra Club; Caroline Chase, Executive Committee Chair, San Diego Sierra Club; Ed Mainland, Co-Chair, Energy-Climate Committee, Sierra Club California; Bern Grush,

Chief Scientist, Skymeter Corporation; and the following San Diego Area Government (SANDAG) employees: Susan Baldwin, Senior Regional Planner; Bob Leiter, former Director of Land Use and Transportation Planning; Coleen Clementson, Principle Planner; and Stephan Vance, Senior Regional Planner.

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KEYWORDS

A&WMA, Parking, Unbundled, Shared, TDM, cash-out, pricing, beneficiary, greenhouse gas, GHG, GPS, RFID

Deriving a Climate-Stabilizing Solution Set of Fleet-Efficiency and Driving-Level Requirements, for Light-Duty Vehicles in California

AWMA Paper 796315

Mike R. Bullock

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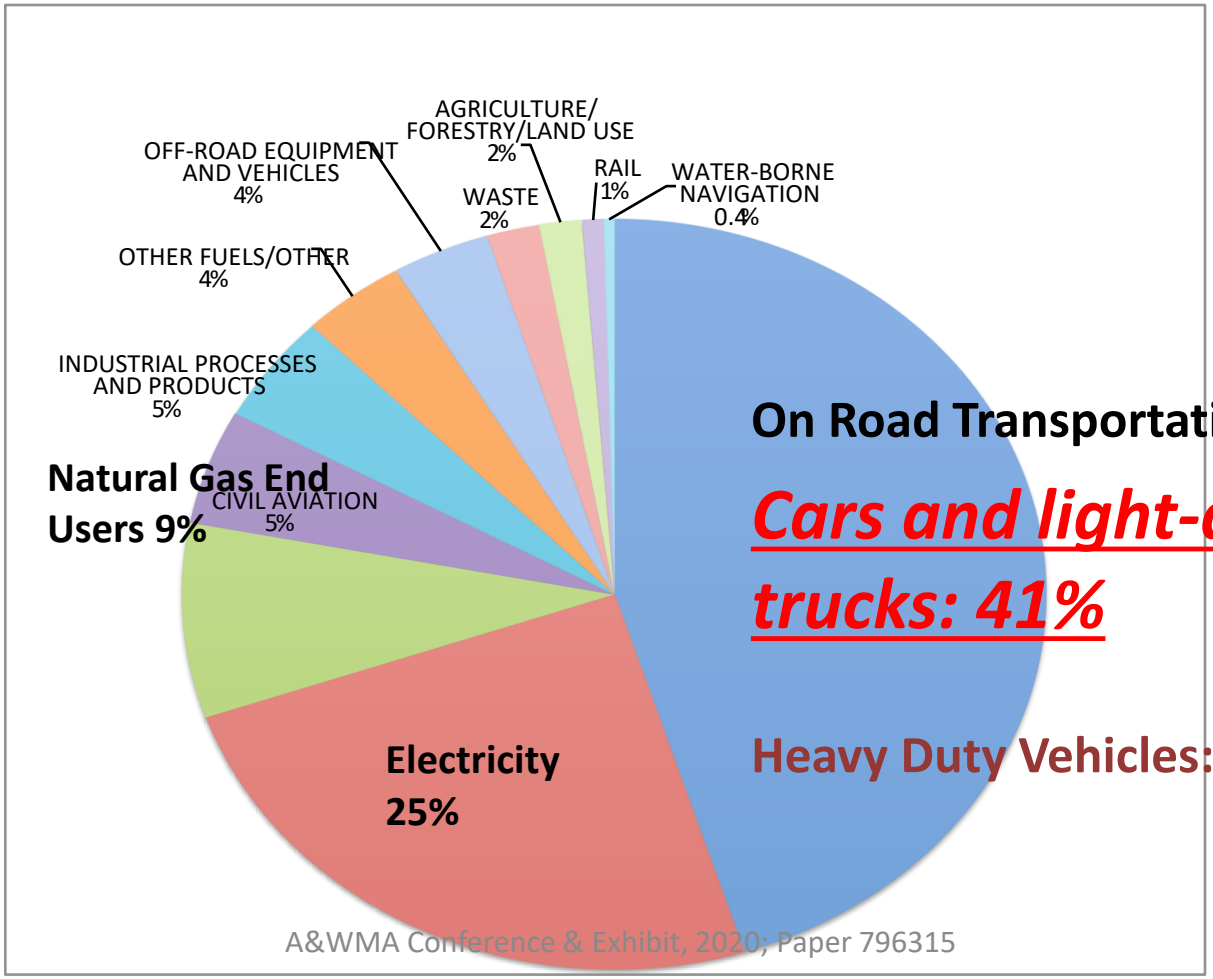
Why pick on cars?

Greenhouse Gas (GHG) Emissions, SD County

Source: Energy Policy Initiatives Center (EPIC, USD)

http://www.sandiego.edu/EPIC/ghginventory/GHG-On-Road1.pdf.pdf



Why is there a Climate Problem?

Any Earth Science text book* contains the following facts:

- **Atmospheric CO2 traps heat**
  - CO2 Molecules absorb and then emit, in a random direction, infrared radiation, heat given off by the Earth's surface
  - This effect is significant
- **Combustion of fossil fuels adds great quantities of CO2 to our Earth's atmosphere**
  - The amount of C02 in the atmosphere is well known
  - Our yearly emissions are well known

*** For example, Page 539 of *Earth Science*, Tarbuck and Lutgens, Tenth Edition, published by Prentice Hall, 2003.**

How Bad Could It Get?

- *Scientific American* June 2008 issue
  - 550 PPM CO2 possible in several decades
  - This could (5% probability) lead to 8 Deg. Celsius of warming
  - 8 Deg. Celsius could lead to "a devastating collapse of the human population, perhaps even to extinction"
- December 24/31 2012 Issue of Nation magazine:

A recent string of reports from impeccable mainstream institutions-the International Energy Agency, the World Bank, the accounting firm of PricewaterhouseCoopers-have warned that the Earth is on a trajectory to warm by at least 4 Degrees Celsius

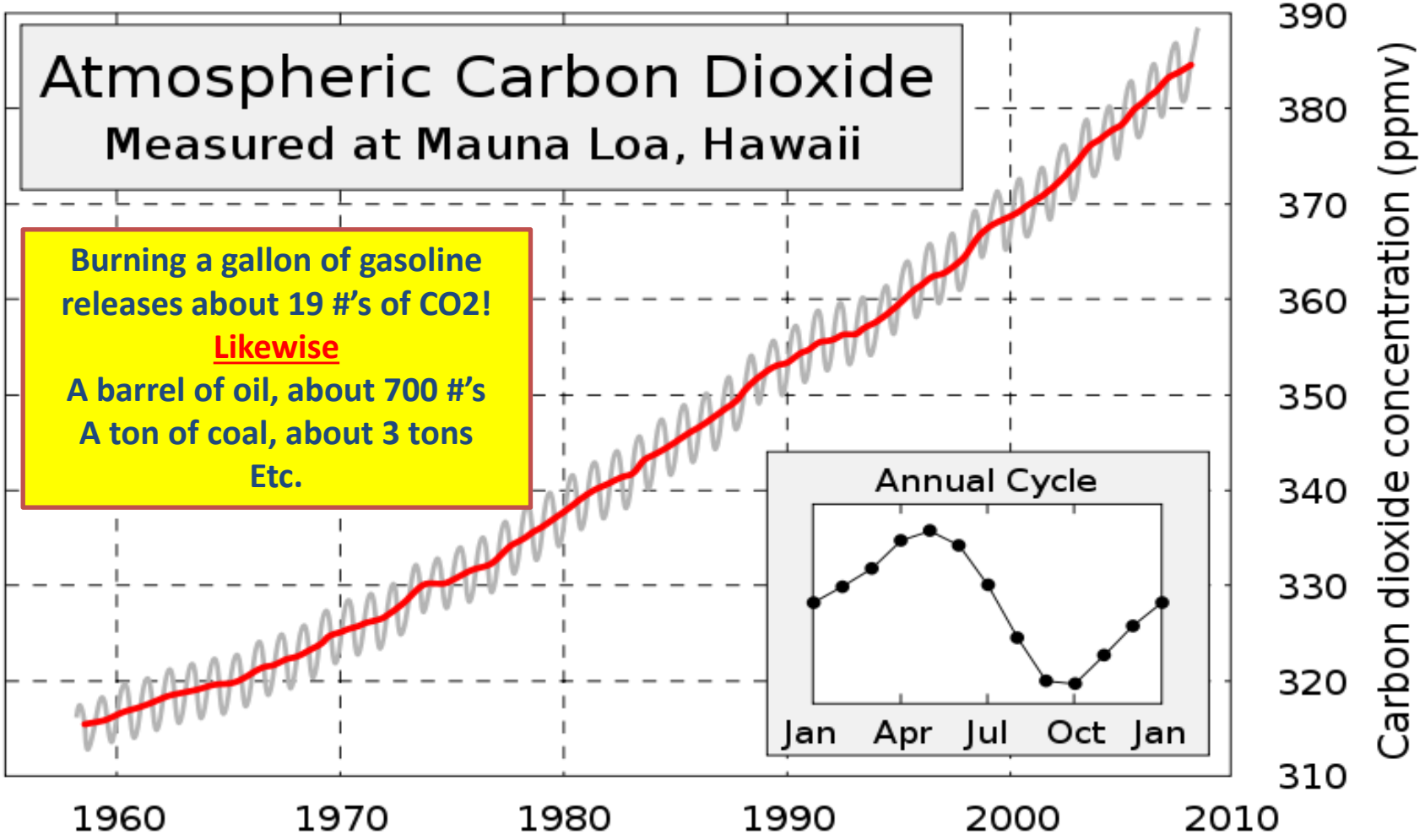
[4 Degrees Celsius] would be *incompatible with continued human survival*.

Winter, ***UU World*** magazine (p. 57) " Lags in the replacement of fossil-fuel use by clean energy use have put the world on a pace for 6 degree Celsius by the end of this century. Such a large temperature rise occurred 250 million years ago and extinguished 90 percent of the life on Earth. The current rise is of the same magnitude but is occurring faster. We must reduce or eliminate all uses of fossil fuels.

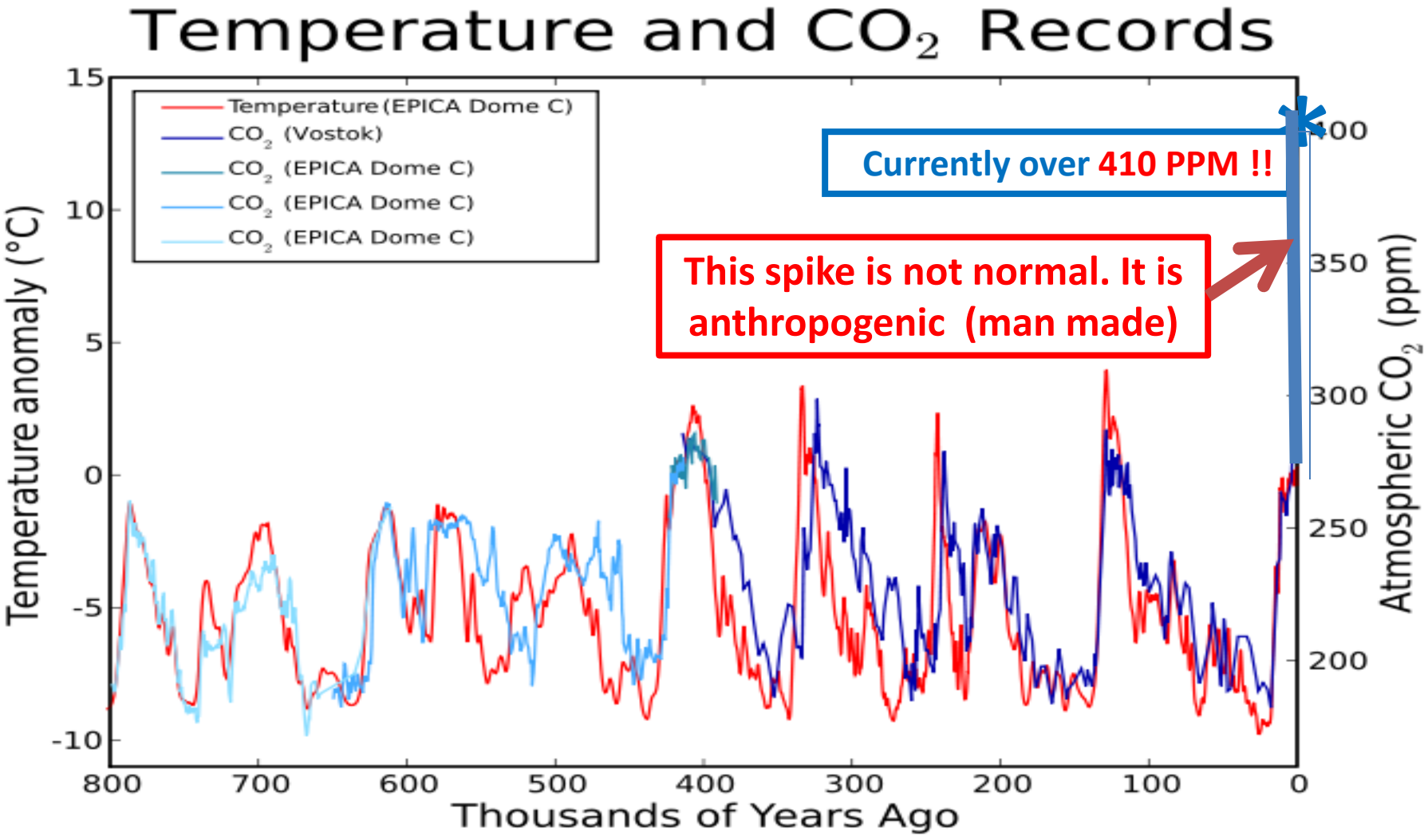
Climate Data

Currently around 415 PPM! *

- Keeling Curve:
  http://en.wikipedia.org/wiki/An_Inconvenient_Truth#Scientific_basis

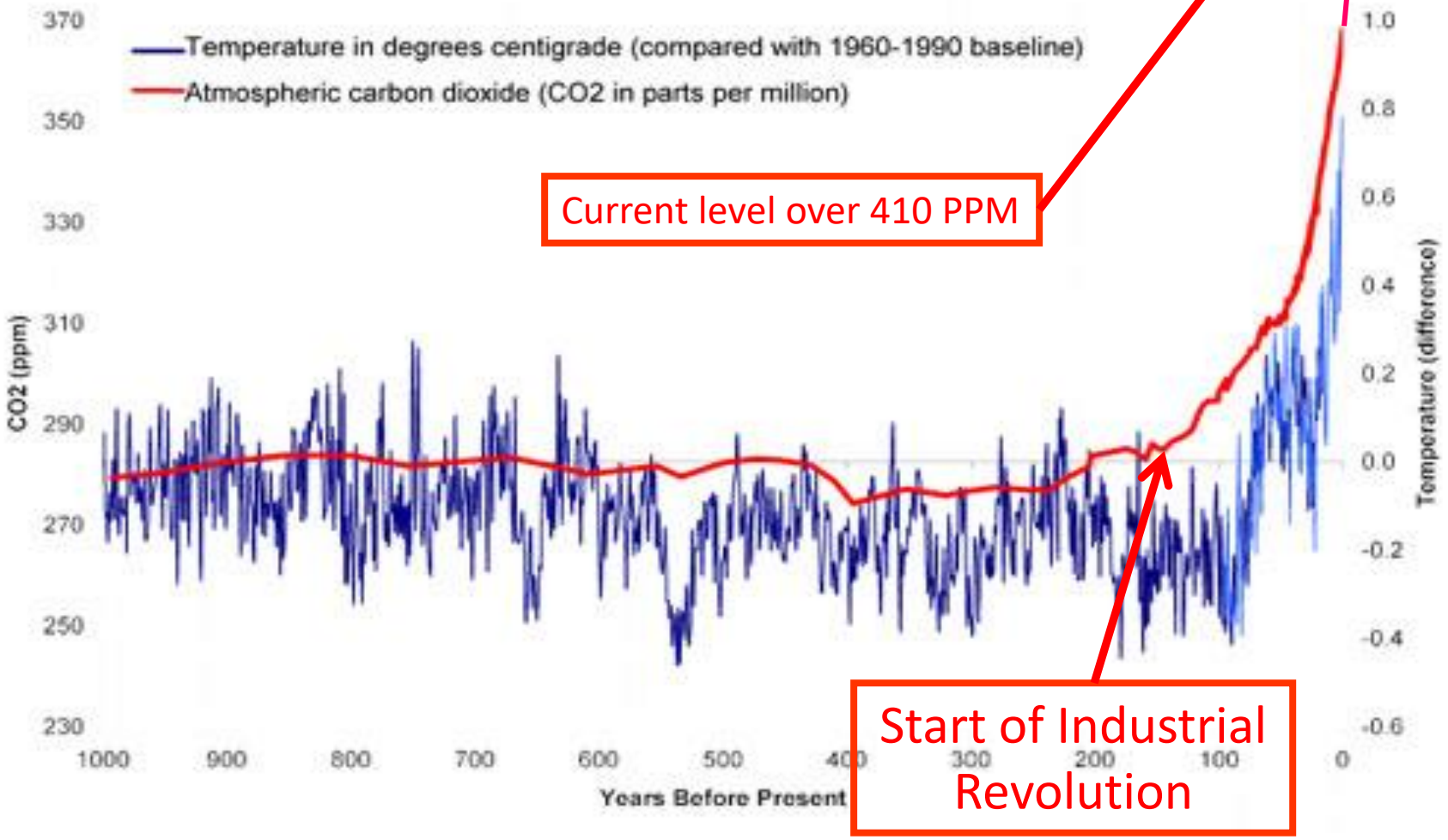


Climate Change, Mostly Normal



Let's Zero In on that Spike

- Earth & Space Research (ESR) website: http://www.esr.org/outreach/climate_change/mans_impact/man1.html



Fixing the Problem

We must stabilize the value of the earth's atmospheric CO2_e

CO2_e Emissions | **Sequestration (Photosynthesis)**

$E_N + E_A + E_{WFB}$ > → Positive Slope

$E_N + E_A + E_{WFB}$ = → Zero Slope

$E_N + E_A + E_{WFB}$ < → Negative Slope

S

Natural: rotting, fire, digestion. respiration

Anthropogenic: combustion of fossil fuel, methane, other

Warming **F**eed **B**ack: such as methane from melting permafrost

Growth of plants on Earth

The Warming Feed Back term, E_{WFB}, is the wild card. It must not become dominant.

Fixing the Problem page 2 of 2

We must stabilize the value of the earth's atmospheric CO2_e. Here is Step 1:

If Anthropogenic emissions were sufficiently low, the slope would be zero, thus capping the value of the Earth's atmospheric CO2_e. To achieve this, industrialized nations must limit their emissions to 80% below their 1990 levels.

Warning: The Warming Feed Back terms must not become dominant.

BRIEF OF SCIENTISTS AMICUS GROUP AS *AMICI CURIAE* IN SUPPORT OF PLAINTIFFS-APPELLANTS SEEKING REVERSAL

DANIEL M. GALPERN
Law Offices of Charles M. Tebbutt, P.C.
941 Lawrence St. Eugene, OR 97401-2815

USCA Case #13-5192 Document #1465822 Filed: 11/12/2013

A. Parties and *Amici*. Except for the following, all parties, intervenors, and *amici* appearing before the district court and in this Court are listed in the Brief for Plaintiffs-Appellants. **James Hansen**, David Beerling, Paul J. Hearty, Ove Hoegh-Guldberg, Pushker Kharecha, Valérie Masson-Delmotte, Camille Parmesan, Eelco Rohling, Makiko Sato, Pete Smith, and Lise Van Susteren are *amici curiae* in this appeal (referred to hereinafter as "Amici Scientists.").

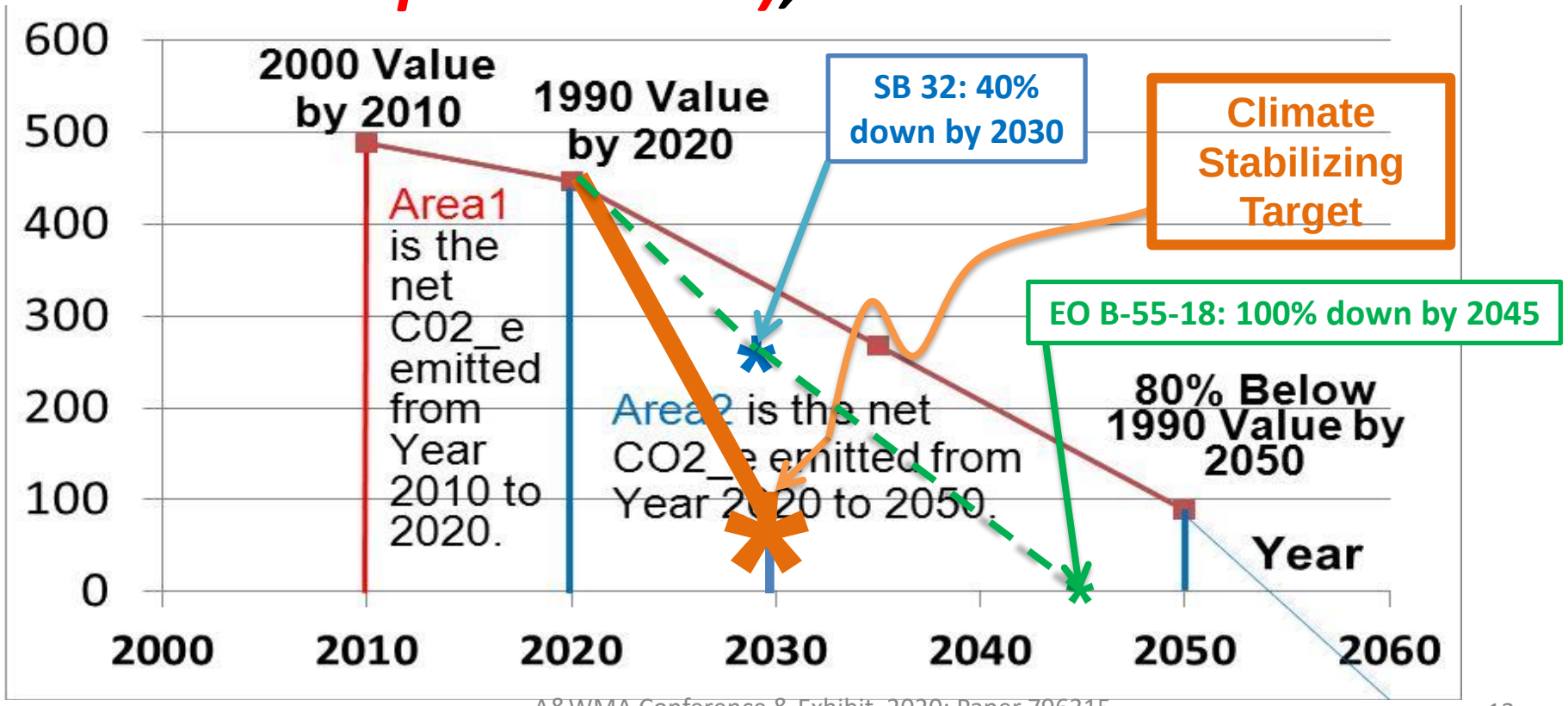
From the Climate Scientists

From Page 21: . . . the required rate of emissions reduction would have been about 3.5% per year if reductions had started in 2005, ***while the required rate of reduction, if commenced in 2020, will be approximately 15% per year.***

- My math:
  - 15% means a factor of 0.85, year after year
  - Consider the 10 years from 2020 to 2030
  - $(.85)^{\mathbf{10}} = .20$, which is 80% down
  - Other articles, describing Hansen's work: "**decarbonization by 2030**"

New Climate-Stabilization Prescription

Shown with 3 California Mandates: EO S-3-05 (Red Line & 4 Square Points), SB 32 and EO B-55-18



***How*, for LDVs:**

Deriving a Climate-Stabilizing Solution Set of Fleet-Efficiency and Driving-Level Requirements, for Light-Duty Vehicles in California

We have the climate scientist's target. We must now derive the LDV Requirements.

Notes on Methods

- Base year 2005
- Intermediate year 2015
- Car Efficiency Factor from 2005 to 2015
  - Steve Winkelman's data
  - http://www.nrdc.org/globalWarming/sb375/files/sb375.pdf
- Car Efficiency Factor, 2015 to 2030
  - Derived in paper (and here)
  - Results in car-efficiency requirements
- Cars last 15 years

From a California law (***SB 375***) giving per-capita driving reduction targets to be achieved in Regional Transportation Plans

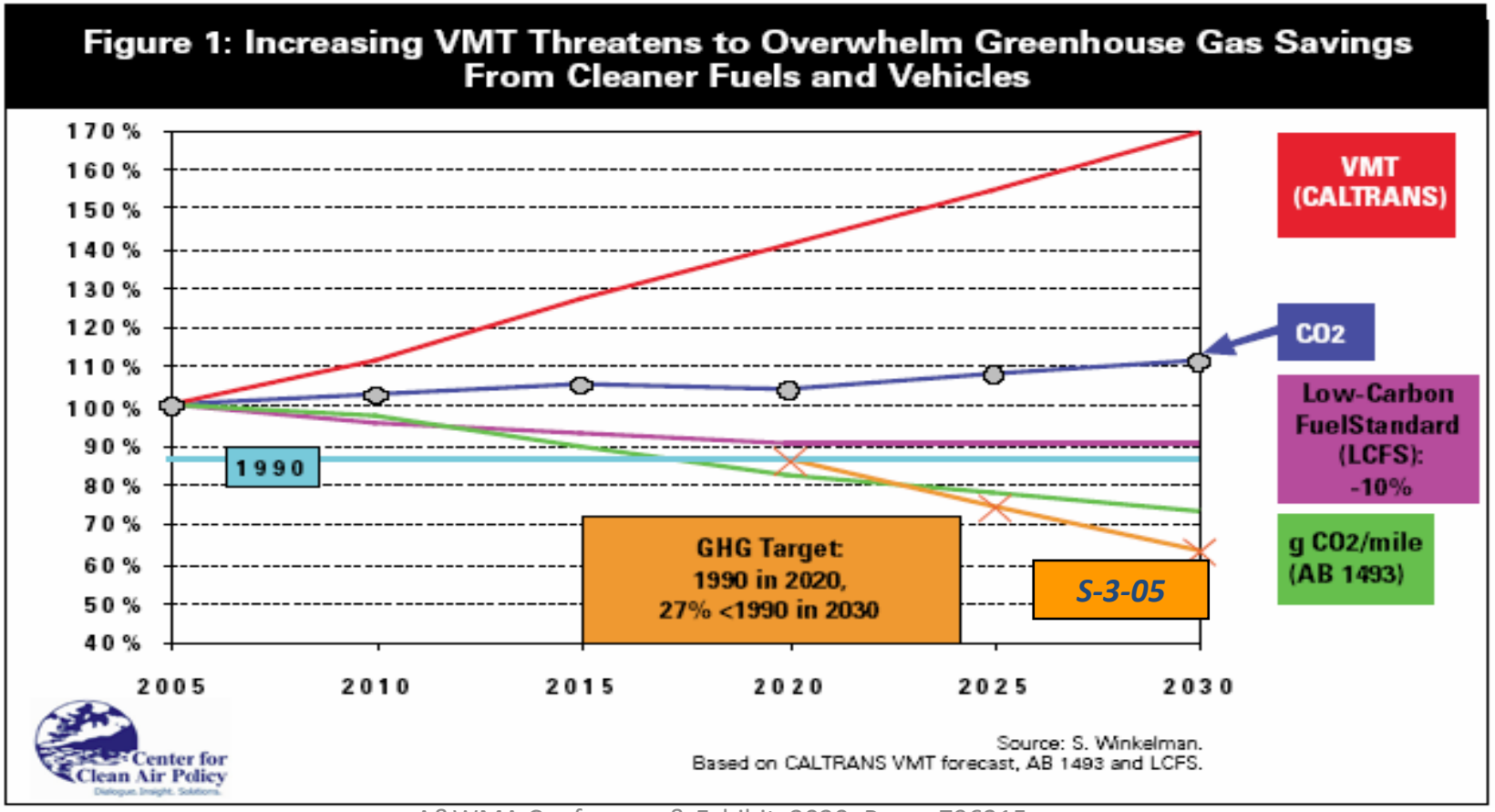
Report on ***SB 375*** See its Table 1.

Cars that survive beyond 2030 are balanced out by those that don't survive to 2030.

Data Relating 1990, 2005, & 2015 Data

Purple (Low carbon fuel), Green (C02/Mile), & Gold (S-3-05)

Figure 1, from: http://www.ecovote.org/sites/default/files/pdf/sb375.pdf



Variables

Definitions	
e_k	LDV Emitted C02, in Year "k"
L_k	Low Carbon Fuel Standard (LCFS) Factor that reduces the Per-Gallon CO2 emissions, in Year "k" (k is denotes Year 2030)
C_k	LDV CO2 emitted per mile driven, average, in Year "k", not accounting for the Low Carbon Fuel Standard (LCFS) Factor
c_k	LDV CO2 emitted per mile driven, average, in Year "k", accounting for the Low Carbon Fuel Standard (LCFS) Factor
p_k	Population, in Year "k"
d_k	Per-capita LDV driving, in Year "k"
D_k	LDV Driving, in Year "k"
M_k	LDV Mileage, miles per gallon, in Year "k"
m_k	LDV Equivalent Mileage, miles per gallon, in Year "k" accounting for the Low Carbon Fuel Standard (LCFS) Factor, so this is M_k/L_k
N	Number of pounds of CO2 per gallon of fuel but not accounting for the Low Carbon Fuel Standard (LCFS) Factor

Fundamental Equations

Future Year k: $\boldsymbol{e_k} = c_k * d_k * p_k$

Base Year i: $\boldsymbol{e_i} = c_i * d_i * p_i$

$$\frac{\boldsymbol{e_k}}{\boldsymbol{e_i}} = \frac{\boldsymbol{c_k}}{\boldsymbol{c_i}} * \frac{\boldsymbol{d_k}}{\boldsymbol{d_i}} * \frac{\boldsymbol{p_k}}{\boldsymbol{p_i}}$$

To work with mileage: $\dfrac{\boldsymbol{m_i}}{\boldsymbol{m_k}} = \dfrac{\boldsymbol{c_k}}{\boldsymbol{c_i}}$

Solution Overview

"k" denotes Year 2030
"i" denotes Year 2005

Car Efficiency Factor
From existing mileage requirements and the ***requirements defined herein***

From existing and predicted population

$$\frac{e_k}{e_i} = \frac{m_i}{m_k} * \frac{d_k}{d_i} * \frac{p_k}{p_i}$$

From the known 1990-to-2005 factor and the **Climate-Stabilizing-Target, which is the factor of 2030 emissions to 1990 emissions**

The Independent Variable
It becomes the ***required per-capita driving reduction with respect to 2005 driving***

A&WMA Conference & Exhibit, 2020; Paper 796315

Solution Using Intermediate Year of 2015

From the **Climate-Stabilizing-Target**, **which is the factor of 2030 emissions to 1990 emissions**

Car Efficiency Factor
From existing mileage requirements and the ***requirements defined herein***

From Winkelman. It is the product of the factor from the green line and the purple line.

From known and predicted populations

$$\frac{e_{2030}}{e_{1990}} * \frac{e_{1990}}{e_{2005}} = \frac{c_{2030}}{c_{2015}} * \frac{c_{2015}}{c_{2005}} * \frac{d_{2030}}{d_{2005}} * \frac{p_{2030}}{p_{2005}}$$

Taken from the Winkelman data: the known 1990-to-2005 factor of emissions (the light blue line)

The Independent Variable
It becomes the ***required 2030 per-capita driving reduction with respect to 2005 driving***

Putting In the Easy-to-Get Values

From the **Climate-Stabilizing-Target**, **which is the factor of 2030 emissions to 1990 emissions ("80% down")**

Car Efficiency Factor
From existing mileage requirements and the ***requirements defined herein***

From Winkelman. It is the product of the factor from the green line and the purple line. There is less CO2 per mile, thanks to the LCFS

From known and predicted populations

$$0.20 * 0.87 = \frac{c_{2030}}{c_{2015}} * 0.90 * 0.93 * \frac{d_{2030}}{d_{2005}} * 1.17446$$

Taken from the Winkelman data: the known 1990-to-2005 factor of emissions (the light blue line)

This ratio is the Independent Variable.
It is the *required per-capita 2030 driving reduction with respect to 2005 driving*

Combining the Easy-to-Get Values, Solving for the Independent Variable, and Changing the 2015-to-2030 Car Efficiency from CO2-Per-Mile to Equivalent-Miles-Per-Gallon

$$0.17700 = \frac{c_{2030}}{c_{2015}} * \frac{d_{2030}}{d_{2005}}$$

$$\frac{d_{2030}}{d_{2005}} = 0.17700 * \frac{c_{2015}}{c_{2030}}$$

$$\frac{d_{2030}}{d_{2005}} = 0.17700 * \frac{m_{2030}}{m_{2015}}$$

Equivalent Mileage in 2030 is what we make it. **It better be as high as possible, because a large driving reduction will be difficult.**
= "NUMERATOR MILEAGE"

The required per-capita 2030 driving with respect to 2005 driving

2015 Fleet Mileage is computed
= "DENOMINATOR MILEAGE"

Some Requirements Defined to Achieve 2030 Fleet Equivalent-Mileage

- Low-Carbon Fuel Standards (LCFS)
- Corporate Average Fuel Efficiency (CAFÉ) Standards from 2015 to 2030
- Driving Reduction Factors (f_n) for bad-mileage years (Year n)

Both California's existing and extended, "L_k"

Existing, to 2025
Specified to 2030

- For example, 0.75 means 25% less driving
- ***Cash for Gas-guzzlers?***

Three More Requirements

Defined to Achieve 2030 Fleet Equivalent-Mileage

- CAFÉ Standards only apply to Internal Combustion Engine (ICE) LDVs
- New Requirement: Fraction of fleet sold that must be ***Zero Emission Vehicles*** (ZEVs)
- In 2030, only 15%, or (the other case) 10% of electricity is from fossil fuels

Define "z" to be the fraction of fleet sold that must be ZEVs

Fleet Mileage for Intermediate Year 2015

LDV Set	Years Old	Model Year	CAFE MPG	LCFS Factor L_{Year}	Factor Driven f	Gallons Used Per f*100 Miles
1	14-15	2001	24.0	1.0	1.0	4.17
2	13-14	2002	24.0	1.0	1.0	4.17
3	12-13	2003	24.0	1.0	1.0	4.17
4	11-12	2004	24.0	1.0	1.0	4.17
5	10-11	2005	25.0	1.0	1.0	4.00
6	9-10	2006	25.7	.9933	1.0	3.87
7	8-9	2007	26.3	.9867	1.0	3.75
8	7-8	2008	27.0	.9800	1.0	3.63
9	6-7	2009	28.0	.9733	1.0	3.48
10	5-6	2010	28.0	.9667	1.0	3.45
11	4-5	2011	29.1	.9600	1.0	3.30
12	3-4	2012	29.8	.9533	1.0	3.20
13	2-3	2013	30.6	.9467	1.0	3.09
14	1-2	2014	31.4	.9400	1.0	2.99
15	0-1	2015	32.6	.9333	1.0	2.86
					Sum of Gallons:	54.29
					Miles = 100*Sum(f's):	1500
					MPG = Miles/(Sum of Gallons):	27.63

Computed DENOMINATOR MILEAGE

ZEV Derivation Variables

Variable	Definition
m_z	ZEV Equivalent mileage (miles per equivalent gallon)
m_{zr}	ZEV Equivalent mileage if the electricity is from 100% renewables
m_{zf}	ZEV Equivalent mileage if the electricity is from 100% fossil fuels
r	fraction of electricity generated from sources not emitting CO2
G	Gallons of equivalent fuel used
D	Arbitrary distance travelled
Num	$m_{zr} \times m_{zf}$
Den	$r \times m_{zf} + (1 - r) \times m_{zr}$

ZEV Derivation

$$G = \frac{r \times D}{m_{zr}} + \frac{(1-r) \times D}{m_{zf}}$$

$$m_z = D/G = D/\left(\frac{r \times D}{m_{zr}} + \frac{(1-r) \times D}{m_{zf}}\right)$$

$$m_z = m_{zr} \times m_{zf} / \left(r \times m_{zf} + (1-r) \times m_{zr}\right)$$

$$m_z = Num/(Den)$$

m_{zr}	m_{zf}	r	1-r	Num	Den	m_z
5000	70	0.80	0.20	350000.00	1056.00	331.44
5000	70	0.85	0.15	350000.00	809.50	432.37
5000	70	0.90	0.10	350000.00	563.00	621.67

Four Variable Definitions & Selecting a Target Numerator Mileage Value

Variable	Definition
D_i	Distance travelled by ICE vehicles
D_z	Distance travelled by ZEV vehicles
G_i	Gallons of equivalent fuel used by ICE vehicles
G_z	Gallons of equivalent fuel used by ZEVs

This previously-derived equation was used.

$$\frac{d_{2030}}{d_{2005}} = 0.17700 * \frac{m_{2030}}{m_{2015}}$$

The driving reduction, $\frac{d_{2030}}{d_{2005}}$, was set to 0.68, corresponding to a 32% reduction in driving.

Then, using the previously-computed $\mathbf{m_{2015}}$ = 27.63 mile per gallon (MPG), the ***Numerator Mileage (m_{2030})*** was computed to be around **106 MPG**.

Finally, the ***z*** values were selected in the following table, by trial and error, to get the ***Numerator Mileage (m_{2030})*** to be close to that **106 MPG** value.

"Balanced_1", 85% Renewable Electricity

ZevMileage = 432.37 So $G_z = D_z / 432.37$

	ICE Parameters and Calculations						ZEVs			Yearly Totals		
Year	CAFÉ MPG	LCFS	Eq. MPG	f	D_i	G_i	z	D_z	G_z	Total Miles	Total Gallons	2030 MPG
2016	34.3	0.9267	37.01	0.3	29.4	0.7943	0.02	2	0.005	31.40	0.7989	39.30
2017	35.1	0.9200	38.15	0.4	39.2	1.0275	0.02	2	0.005	41.20	1.0321	39.92
2018	36.1	0.9133	39.53	0.5	48.5	1.2271	0.03	3	0.007	51.50	1.2340	41.73
2019	37.1	0.9067	40.92	0.6	57.6	1.4077	0.04	4	0.009	61.60	1.4169	43.47
2020	38.3	0.9000	42.56	0.7	64.4	1.5133	0.08	8	0.019	72.40	1.5318	47.26
2021	40.3	0.8500	47.41	0.8	64.0	1.3499	0.20	20	0.046	84.00	1.3961	60.17
2022	42.3	0.8000	52.88	0.9	58.5	1.1064	0.35	35	0.081	93.50	1.1873	78.75
2023	44.3	0.8000	55.38	1.0	45.0	0.8126	0.55	55	0.127	100.00	0.9398	106.40
2024	46.5	0.8000	58.13	1.0	20.0	0.3441	0.80	80	0.185	100.00	0.5291	188.99
2025	48.7	0.8000	60.88	1.0	6.0	0.0986	0.94	94	0.217	100.00	0.3160	316.48
2026	51.2	0.8000	64.00	1.0	3.0	0.0469	0.97	97	0.224	100.00	0.2712	368.70
2027	53.7	0.8000	67.13	1.0	2.0	0.0298	0.98	98	0.227	100.00	0.2565	389.93
2028	56.2	0.8000	70.25	1.0	1.0	0.0142	0.99	99	0.229	100.00	0.2432	411.17
2029	58.7	0.8000	73.38	1.0	1.0	0.0136	0.99	99	0.229	100.00	0.2426	412.20
2030	61.2	0.8000	76.50	1.0	1.0	0.0131	0.99	99	0.229	100.00	0.2420	413.15
Sum of Miles and then Gallons of equivalent fuel:										1235.60	11.64	

Equivalent MPG of LDV Fleet in 2030: 106.17

ZEV Miles Driven = 795.0 Fraction of Miles Driven by ZEVs = 64.3%

Computed NUMINATOR MILEAGE

Computing the Ratio of Per-Capita 2030 Driving to Per-Capita 2005 Driving

Equivalent Mileage in 2030 = "**NUMERATOR MILEAGE**"

$$\frac{d_{2030}}{d_{2005}} = .1770 * \frac{106.17}{27.63} = .68$$

2015 Fleet Mileage was computed before = "**DENOMINATOR MILEAGE**"

The factor of 0.68 means there is a 32% reduction in per-capita driving, from 2005 to 2030.

Again, for the next case, the ***z*** values were selected by trial and error, to get the 106 MPG value, corresponding to a 32% decrease in driving.

"Balanced_2", 90% Renewable Electricity

ZevMileage = 621.67 So $G_z = D_z / 621.67$

Year	ICE Parameters and Calculations						ZEVs			Yearly Totals		
	CAFÉ MPG	LCFS	Eq. MPG	f	D_i	G_i	z	D_z	G_z	Total Miles	Total Gallons	2030 MPG
2016	34.3	0.927	37.01	0.3	29.4	0.7943	0.02	2	0.003	31.40	0.7975	39.37
2017	35.1	0.920	38.15	0.4	39.2	1.0275	0.02	2	0.003	41.20	1.0307	39.97
2018	36.1	0.913	39.53	0.5	48.5	1.2271	0.03	3	0.005	51.50	1.2319	41.81
2019	37.1	0.907	40.92	0.6	57.6	1.4077	0.04	4	0.006	61.60	1.4141	43.56
2020	38.3	0.900	42.56	0.7	64.4	1.5133	0.08	8	0.013	72.40	1.5262	47.44
2021	40.3	0.850	47.41	0.8	68.0	1.4342	0.15	15	0.024	83.00	1.4584	56.91
2022	42.3	0.800	52.88	0.9	67.5	1.2766	0.25	25	0.040	92.50	1.3168	70.25
2023	44.3	0.800	55.38	1.0	55.0	0.9932	0.45	45	0.072	100.00	1.0656	93.84
2024	46.5	0.800	58.13	1.0	30.0	0.5161	0.70	70	0.113	100.00	0.6287	159.05
2025	48.7	0.800	60.88	1.0	5.0	0.0821	0.95	95	0.153	100.00	0.2349	425.62
2026	51.2	0.800	64.00	1.0	3.0	0.0469	0.97	97	0.156	100.00	0.2029	492.84
2027	53.7	0.800	67.13	1.0	2.0	0.0298	0.98	98	0.158	100.00	0.1874	533.52
2028	56.2	0.800	70.25	1.0	1.0	0.0142	0.99	99	0.159	100.00	0.1735	576.42
2029	58.7	0.800	73.38	1.0	1.0	0.0136	0.99	99	0.159	100.00	0.1729	578.45
2030	61.2	0.800	76.50	1.0	1.0	0.0131	0.99	99	0.159	100.00	0.1723	580.31
Sum of Miles and then Gallons of equivalent fuel:										1233.60	11.61	

Equivalent MPG of LDV Fleet in 2030: 106.22

ZEV Miles Driven = 761.0 Fraction of Miles Driven by ZEVs = 61.7%

Computed NUMINATOR MILEAGE

Selecting a Target Numerator Mileage Value to Get a 0% Reduction in Driving

This previously-derived equation was used.

$$\frac{d_{2030}}{d_{2005}} = 0.17700 * \frac{m_{2030}}{m_{2015}}$$

The driving reduction, $\frac{d_{2030}}{d_{2005}}$, was set to 1.00, corresponding to a 0% reduction in driving.

Then, using the previously-computed $\mathbf{m_{2015}}$ = 27.63 mile per gallon (MPG), the ***Numerator Mileage (m_{2030})*** was computed to be around **156 MPG**.

Finally, the ***z*** values were selected in the following table, by trial and error, to get the ***Numerator Mileage (m_{2030})*** to be close to that **156 MPG** value.

"2005 Driving Case", 90% Renewable Electricity

Zev mileage = 621.67 So $G_z = D_z / 621.67$

Year	ICE Parameters and Calculations						ZEVs			Yearly Totals		
	CAFÉ MPG	LCFS	Eq. MPG	f	D_i	G_i	z	D_z	G_z	Total Miles	Total Gallons	2030 MPG
2016	34.3	0.9267	37.01	0.3	29.4	0.7943	0.02	2.0	0.003	31.40	0.7975	39.37
2017	35.1	0.9200	38.15	0.4	39.2	1.0275	0.02	2.0	0.003	41.20	1.0307	39.97
2018	36.1	0.9133	39.53	0.5	48.5	1.2271	0.03	3.0	0.005	51.50	1.2319	41.81
2019	37.1	0.9067	40.92	0.6	57.6	1.4077	0.04	4.0	0.006	61.60	1.4141	43.56
2020	38.3	0.9000	42.56	0.7	64.4	1.5133	0.08	8.0	0.013	72.40	1.5262	47.44
2021	40.3	0.8500	47.41	0.8	14.4	0.3037	0.82	82.0	0.132	96.40	0.4356	221.29
2022	42.3	0.8000	52.88	0.9	2.7	0.0511	0.97	97.0	0.156	99.70	0.2071	481.42
2023	44.3	0.8000	55.38	1.0	1.0	0.0181	0.99	99.0	0.159	100.00	0.1773	563.99
2024	46.5	0.8000	58.13	1.0	1.0	0.0172	0.99	99.0	0.159	100.00	0.1765	566.72
2025	48.7	0.8000	60.88	1.0	1.0	0.0164	0.99	99.0	0.159	100.00	0.1757	569.23
2026	51.2	0.8000	64.00	1.0	1.0	0.0156	0.99	99.0	0.159	100.00	0.1749	571.84
2027	53.7	0.8000	67.13	1.0	1.0	0.0149	0.99	99.0	0.159	100.00	0.1741	574.23
2028	56.2	0.8000	70.25	1.0	1.0	0.0142	0.99	99.0	0.159	100.00	0.1735	576.42
2029	58.7	0.8000	73.38	1.0	1.0	0.0136	0.99	99.0	0.159	100.00	0.1729	578.45
2030	61.2	0.8000	76.50	1.0	1.0	0.0131	0.99	99.0	0.159	100.00	0.1723	580.31
Sum of Miles and then Gallons of equivalent fuel:										1254.20	8.04	

Equivalent MPG of LDV Fleet in 2030: 155.99

ZEV Miles Driven = 990.0 Fraction of Miles Driven by ZEVs = 78.9%

Computed NUMINATOR MILEAGE

Computing the Ratio of Per-Capita 2030 Driving to Per-Capita 2005 Driving

Equivalent Mileage in 2030 is what we made it by selecting the "z" values in the previous table. = "**NUMERATOR MILEAGE**"

$$\frac{d_{2030}}{d_{2005}} = .1770 * \frac{155.99}{27.63} = 1.00$$

2015 Fleet Mileage was computed **= "DENOMINATOR MILEAGE"**

For the next case, the ***z*** values were taken from a published article describing values selected by the Chair of the California Air Resources Board, Mary Nichols.

"Mary Nichols Case", 90% Renewable Electricity

Zev Mileage = 621.67 So $G_z = D_z / 621.67$

Year	ICE Parameters and Calculations						ZEVs			Yearly Totals		
	CAFÉ MPG	LCFS	Eq. MPG	f	D_i	G_i	z	D_z	G_z	Total Miles	Total Gallons	2030 MPG
2016	34.3	0.9267	37.01	0.3	29.2	0.7886	0.027	2.7	0.004	31.89	0.7930	40.22
2017	35.1	0.9200	38.15	0.4	38.9	1.0201	0.027	2.7	0.004	41.62	1.0245	40.63
2018	36.1	0.9133	39.53	0.5	47.4	1.2003	0.051	5.1	0.008	52.56	1.2086	43.49
2019	37.1	0.9067	40.92	0.6	55.5	1.3560	0.075	7.5	0.012	63.01	1.3681	46.06
2020	38.3	0.9000	42.56	0.7	63.0	1.4814	0.099	9.9	0.016	72.98	1.4974	48.74
2021	40.3	0.8500	47.41	0.8	70.1	1.4790	0.124	12.4	0.020	82.47	1.4988	55.02
2022	42.3	0.8000	52.88	0.9	76.7	1.4509	0.148	14.8	0.024	91.48	1.4746	62.03
2023	44.3	0.8000	55.38	1.0	82.8	1.4957	0.172	17.2	0.028	100.00	1.5233	65.65
2024	46.5	0.8000	58.13	1.0	80.4	1.3834	0.196	19.6	0.032	100.00	1.4149	70.67
2025	48.7	0.8000	60.88	1.0	78.0	1.2813	0.220	22.0	0.035	100.00	1.3167	75.95
2026	51.2	0.8000	64.00	1.0	62.4	0.9750	0.376	37.6	0.060	100.00	1.0355	96.57
2027	53.7	0.8000	67.13	1.0	46.8	0.6972	0.532	53.2	0.086	100.00	0.7828	127.75
2028	56.2	0.8000	70.25	1.0	31.2	0.4441	0.688	68.8	0.111	100.00	0.5548	180.25
2029	58.7	0.8000	73.38	1.0	15.6	0.2126	0.844	84.4	0.136	100.00	0.3484	287.05
2030	61.2	0.8000	76.50	1.0	0.0	0.0000	1.000	100.0	0.161	100.00	0.1609	621.67
Sum of Miles and then Gallons of equivalent fuel:										1236.00	16.00	

Equivalent MPG of LDV Fleet in 2030: 77.24

ZEV Miles Driven = 457.9 **Fraction of Miles Driven by ZEVs = 37.0%**

Computed NUMINATOR MILEAGE

Computing the Ratio of Per-Capita 2030 Driving to Per-Capita 2005 Driving

Equivalent Mileage in 2030 is what resulted from the Mary Nichols statement. It is the "**NUMERATOR MILEAGE**"

$$\frac{d_{2030}}{d_{2005}} = .1770 * \frac{77.24}{27.63} = .495$$

2015 Fleet Mileage was computed = "**DENOMINATOR MILEAGE**"

CARB may not understand that the fleet electrification schedule suggested by their Board Chair would require that per-capita driving be about half what it was in 2005, if LDVs are to achieve climate-stabilizing targets.

Net Driving Decrease with Respect to 2005 Driving for the "Balanced" Cases

(Per-Capita Driving Factor) x (Population Factor) = Net Driving Factor

This factor corresponds to the 32% reduction in per-capita driving

(.68) x (1.1744) = .80

Therefore, even though the population will grow 17%, net driving must decrease by 20%.

Therefore, why add highway lanes?

We need enforceable measures to reduce driving so much there will be no more congestion!

4 Cases that Support Climate Stabilization

Note: Purple denotes difficult; red, impossible.

	Case Designations			
	Balanced_1	Balanced_2	2005 Driving	Mary Nichols
% Renewable Electricity	85.0%	90.0%	90.0%	90.00%
% ZEVs, Year 2016	2.0%	2.0%	2.0%	2.70%
% ZEVs, Year 2017	2.0%	2.0%	2.0%	2.70%
% ZEVs, Year 2018	3.0%	3.0%	3.0%	5.11%
% ZEVs, Year 2019	4.0%	4.0%	4.0%	7.53%
% ZEVs, Year 2020	8.0%	8.0%	8.0%	9.94%
% ZEVs, Year 2021	20.0%	15.0%	82.0%	12.35%
% ZEVs, Year 2022	35.0%	25.0%	97.0%	14.76%
% ZEVs, Year 2023	55.0%	45.0%	99.0%	17.18%
% ZEVs, Year 2024	80.0%	70.0%	99.0%	19.59%
% ZEVs, Year 2025	94.0%	95.0%	99.0%	22.00%
% ZEVs, Year 2026	97.0%	97.0%	99.0%	37.60%
% ZEVs, Year 2027	98.0%	98.0%	99.0%	53.20%
% ZEVs, Year 2028	99.0%	99.0%	99.0%	68.80%
% ZEVs, Year 2029	99.0%	99.0%	99.0%	84.40%
% ZEVs, Year 2030	99.0%	99.0%	99.0%	100.00%
% Reduction in Per-Capita Driving With Respect to Year 2005	32.0%	32.0%	0%	50.5%

Enforceable Measures to Reduce 2030 Driving by 32% With Respect to 2005

California designs and implements this

Local governments do this with a 3rd party vendor

Driving-Reduction Requirments	Per-Cent Reduction	Factor
Legislated (SB 375) Plans to Reduce Driving	12%	0.88
Value-Priced Road Use Charge (RUC)	10%	0.90
Value-Priced Parking (Unbundling the Cost)	8%	0.92
Transfer Highway Expansion Funds to Transit	2%	0.98
Increase Height & Density by Transit Stations	2%	0.98
"Complete Streets", "Road Diet" (walk/bike)	1%	0.99
Pay-to-Graduat e Bicycle Traffic-Skills Class	1%	0.99
Bicycle Projects to Improve Access	1%	0.99
Product of Factors		**0.68**
% Reduction		**32%**

These enforceable measures are described in the AWMA paper.

An Important Pricing Strategy

A Road-Usage-Charge (RUC) Pricing & Payout System

THEREFORE, BE IT RESOLVED, that the Democratic Club of Carlsbad and Oceanside (DEMCCO) supports a road-usage charge (RUC) pricing & payout system that would (1) cover all road-use costs, including the environmental & health costs caused by driving; (2) mitigate impacts on low-income users; (3) protect privacy; (4) include congestion pricing; (5) keep the per-mile price incentive to drive energy-efficient cars at least as large as it is with today's fuel excise tax; and (6) send its earnings to all citizens and institutions that are currently losing money by subsidizing road use.

Another Important **Pricing** Strategy

A good car-parking system: value-priced (with congestion pricing), shared, automated, and providing earnings to those losing money because the parking is being provided.

The first such systems should be installed by a third-party vendor (such as **Google, Qualcomm, Uber, or Lime Bicycle)**, selected by a RFP (Request for Proposal) process, for municipal government employees, as part of the government's **Climate Action Plan**. It would be operated for the financial gain of the employees. The RFP would specify that even employees that continue to drive every day would at least break even. The winning third-party vendor would be skilled at monetizing parking, whenever it is not being used by the employees; at monetizing data; and at expanding the system. The system would be automated with a useful phone app to find the best parking at the user-specified price and walk-distance.

Support for an Equitable, Convenient, and Environmentally-Sound Car-Parking System that Protects Privacy and *the Economic Interests of Low-Income Drivers*

WHEREAS, (1) our greenhouse gas (GHG) emissions must be reduced, (2) about 40% of California's emissions are from on-road transportation; (3) reducing car parking subsidies would (a) reduce GHG emissions, air-pollution, and congestion by reducing vehicle trips, (b) give employees more control over their potential earnings, and (c) give renters and consumers more control over their costs; and furthermore,

WHEREAS, (1) Too often, non-drivers lose money due to parking facilities being provided; (2) "free" employee parking is paid for by lower wages for all workers, including those who do not drive; (3) properly pricing parking would reduce the need to build so much parking and the resulting lower construction costs would help everyone; and (4) "free" parking at an apartment complex can sometimes increase rent by over $75 dollars per month, for all renters, even those that do not own a car; and finally,

WHEREAS, (1) methods to automatically charge car owners based on when and where their car was parked, could be implemented, while having safeguards to protect privacy and the economic interests of low-income drivers; (2) methods to automatically provide car-parking earnings to renters, residents, shoppers, train riders, employees, those residing on streets that have on-street parking, and others, could be implemented, using algorithms tailored to each group; (3) earnings algorithms for employees could ensure that even those that drive everyday would break even; (4) parking is optimized if it is available to all user groups, (5) pricing algorithms for on-street parking could protect neighborhoods from the excessive intrusion of parked cars, and (6) a car-parking phone app could direct users to the best parking space, given the driver's willingness to pay and walk, thus reducing cars being driven around to look for parking.

THEREFORE, BE IT RESOLVED, that that the San Diego County Democratic Party supports researching a car-parking system in which the parking is valued-priced, shared; convenient to drivers, provides earnings to those losing money because the parking is being provided, protects privacy by requiring a search warrant to get parking location information, and protects the economic interests of low-income drivers.

BE IT FURTHER RESOLVED, that this support be communicated as a co-sponsor for the resolution sent to California Democratic Party (CDP) Resolutions Committee and Platform Committee.

Mike Bullock, 76 AD, 760-754-8025, mike_bullock@earthlink.net

DEMCCO adopted a similar resolution in 2014 and supports this resolution.

Endorsed by Rob Howard, Oceanside Mayoral Candidate, SD Labor E-Board, Former North County NAACP President; Nora Vargas SDC BOS D1 Candidate; Kyle Krahel-Frolander, NAC Chair and Oceanside Planning Commissioner (Former Chair); **Congressman Mike Levin, 49th CD**; Lela Panagides, Carlsbad City Council Candidate D2

Eliminating the Harm of Bundled-Cost or Bundled-Benefit Parking

- Definitions of Parking Systems
- New System: *Dividend-Account Parking*
  - Motivations for change
  - Definition and features
  - A demonstration project

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A Bundled-Cost Parking System

The most common of all parking systems. Erroneously called "free"

The cost of the parking is contained within some other payment, such as:

- **Rent**
- **Train fare (at least 1 train station with so-called "free" parking)**
- **Price of consumer items, including food**

A Bundled-Benefit Parking System

The 2nd most common of all parking systems. Erroneously called "free"

The parking is part of a benefit package being provided, such as:

- **Compensation for work**
- **Public education**
- **Public anything, such as a library or park**

The harm of a *Bundled-Cost* or a *Bundled-Benefit* car-parking system is that they take *money* from people without their knowledge or consent.

These systems also increase the choice to drive alone.

Sierra Club Resolution: **Appropriate pricing of parking is the least costly way to reduce vehicle miles travelled.**

Bundled-Cost or *Bundled-Benefit* systems should be replaced with the *DAP* Car-Parking system!

Dividend Account Parking (DAP)

Brief System Definition

1. **Automated (nothing to do; just park and run)**
2. **Value-priced, with a congestion-pricing option**
3. **Earnings (AKA "Dividends" or "Financial Support") go to the people for whom the parking is built (for example, employees)**
4. **Cars must be recognizable & associated with an Account**
5. **Parking is available to all ("Shared Parking") driving such a car**

From the California Democratic Party (CDP) 2018 Platform

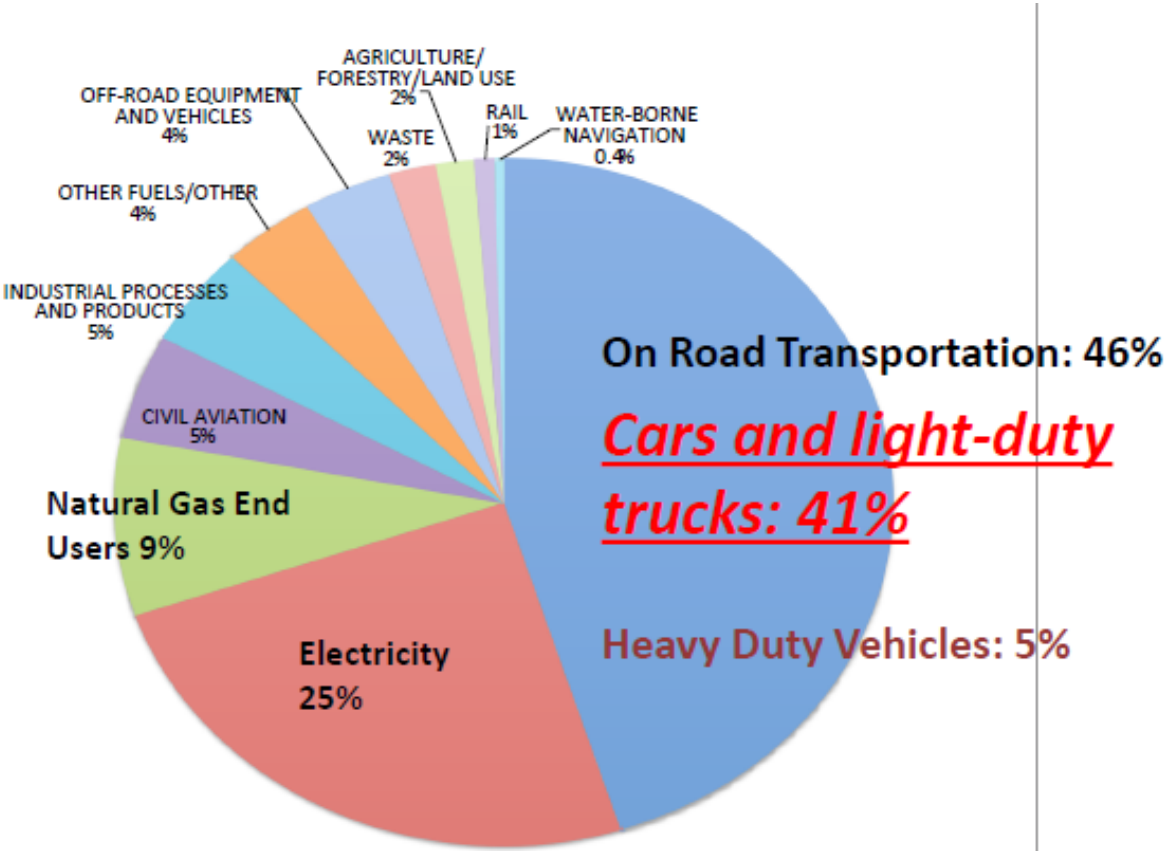
From: https://www.cadem.org/our-party/standing-committees/body/CDP-Platform-2018.pdf

Transportation Sub-Plank Statement

- Work for **shared**, convenient, and **value-priced** parking, operated with a system that **provides financial support** to those paying higher costs or getting a reduced wage, due to the cost of providing the parking ***Note: this is DAP!***

Motivation for Change, 1 of 4

Cars and Light-duty vehicles (LDVs) emit the most GHG of any category



Motivation for Change, 2 of 4

- ***Fleet Efficiency Will Not Come Soon Enough, as shown in this peer-reviewed report:***

2020 Air & Waste Management Association (AWMA) Report

Deriving Climate-Stabilizing Solution Sets of Fleet-Efficiency and Driving-Level Requirements, for California Light-Duty Vehicles*

***Available upon request from mike_bullock@earthlink.net**

Motivation for Change, 3 of 4

Climate-Stabilizing Requirements, for Four Cases

Difficult but possible

	Case Designations			
	Balanced_1	Balanced_2	2005 Driving	Mary Nichols
% Renewable Elecricity	85.0%	90.0%	90.0%	90.00%
% ZEVs, Year 2016	2.0%	2.0%	2.0%	2.70%
% ZEVs, Year 2017	2.0%	2.0%	2.0%	2.70%
% ZEVs, Year 2018	3.0%	3.0%	3.0%	5.11%
% ZEVs, Year 2019	4.0%	4.0%	4.0%	7.53%
% ZEVs, Year 2020	8.0%	8.0%	8.0%	9.94%
% ZEVs, Year 2021	20.0%	15.0%	82.0%	12.35%
% ZEVs, Year 2022	35.0%	25.0%	97.0%	14.76%
% ZEVs, Year 2023	55.0%	45.0%	99.0%	17.18%
% ZEVs, Year 2024	80.0%	70.0%	99.0%	19.59%
% ZEVs, Year 2025	94.0%	95.0%	99.0%	22.00%
% ZEVs, Year 2026	97.0%	97.0%	99.0%	37.60%
% ZEVs, Year 2027	98.0%	98.0%	99.0%	53.20%
% ZEVs, Year 2028	99.0%	99.0%	99.0%	68.80%
% ZEVs, Year 2029	99.0%	99.0%	99.0%	84.40%
% ZEVs, Year 2030	99.0%	99.0%	99.0%	100.00%
% Reduction in Per-Capita Driving With Respect to Year 2005	32.0%	32.0%	0.0%	50.5%

Driving as much as we did in 2005 might seem nice, but these % ZEV jumps are not possible

Air Resources Board Mary Nichols has a nice electrification schedule but it would require a very difficult reduction in driving.

Motivation for Change, 4 of 4

Requirements to Achieve the Needed 32% Reduction in Per-Capita Driving, With Respect to 2005

Driving-Reduction Requirments	Per-Cent Reduction	Factor
Legislated (SB 375) Plans to Reduce Driving	12%	0.88
Value-Priced Road Use Charge (RUC)	10%	0.90
Dividend Account Parking	**8%**	**0.92**
Transfer Highway Expansion Funds to Transit	2%	0.98
Increase Height & Density by Transit Stations	2%	0.98
"Complete Streets", "Road Diet" (walk/bike)	1%	0.99
*Pay-to-Graduat*e Bicycle Traffic-Skills Class	1%	0.99
Bicycle Projects to Improve Access	1%	0.99
Product of Factors		**0.68**
% Reduction		**32%**

Conclusion & Path Forward

- A big part of the needed 32% reduction will need to come from car-parking reform.
- The first step will be a simplified demonstration project of a **Dividend Account Parking** System at a work location.
- A proposal is now be presented.

A *Dividend-Account Parking System* for Oceanside's Civic Center Garage

A System to Eliminate the Harm of Bundled-Benefit Car Parking for City Employees

300 North Coast Highway

- Top-Level Outcome & Overview
- Some Top-Level Calculations
- Who gets to use the system
- Overcoming problems & perceptions
- Outcomes of a new incentive
- Cash flow ("Hey, where does the $$ come from?")

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Top-Level Outcomes

- Employees that drive every day break even **(Lose no money!)**
- Employees that *don't* drive every day get *paid to not drive* **(Make more money!)**
- Fewer employees drive, reducing Greenhouse Gas (GHG) emissions **(Less GHG!)**

Overview

- Fully-automated parking system, implemented by a 3rd-party vendor (RFP selection process)
- operated for the financial gain of employees
  - Earnings = Money Generated Minus Vendor Earnings
  - Earnings go to employees
- Price is cost per minute
  - Such as 1.85 cents per minute (= $1.11 per hour)
- An employee's **Earnings** ("**Dividend**") is proportional to their time spent at work

Calculations of an Employee's Earnings

- An employee's earning is proportional to time spent at work (automatic collection of enter/exit times, using employee RFID)

Definitions to Compute an Employee's Monthly Earnings	
$T_{Employee}$	The Employee's Monthly Time at the Work Site
$T_{AllEmployees}$	Total Monthly Time at the Work Site, All Employees
$E_{AllEmployees}$	Total Monthly Earnings from the Employee Parking

$$\text{Employee Earnings} = E_{AllEmployees} \times (T_{Employee} / T_{AllEmployees})$$

"Add In" Payment so Those that Drive Every Day Will Lose No Money

Note: This is for an individual employee, "Joe"

Joe's Parking Payment =

Joe's Earnings – Price per Minute x Minutes Joe Parked + Joe's "Add In"

"Add In" is zero, unless it must take on a positive value so that Joe loses no money

"Add In" payments will be easily covered by Dividend Account Parking parkers that are not employees.

Charge, Earnings, & Add-In, Payment *For Each Employee*

- **Charge**
  - Total Minutes Parked x Cost per Minute
- **Earnings**
  - As shown on earlier slide (proportional to employee's time spent at work)
- **Add-In**
  - Zero, unless **Charge** > **Earnings**
  - If **Charge** > **Earnings**, **Add-In** = **Charge** – **Earnings**
- **Payment** = **Earnings** – **Charge** + **Add-In**

Who Gets To Use Dividend-Account Parking

- ***Anyone*** (not necessarily an employee) driving a car registered in the system
  - There is a person with an account associated with the car
  - The car will be identified
    - License plate reader and/or
    - RFID tag not needed
  - Account can be established on the spot, in less than 5 minutes: credit card info and license number

Employee Behavior 1 of 2

Employees Must Park in Their Parking Lot if they Drive to Work

Measures to Reduce "Cheating" = Parking in the Neighborhood

- Soft, pre-emptive measure: messaging
  - **Perceived integrity** is every employee's responsibility
  - **Insufficient perceived integrity** can cost employees
    - Reduced chance of promotion
    - Smaller pay raises
    - More chance of terminated employment
  - Parking free in the neighborhood will not be tolerated
  - The City wants to be a good neighbor: this is the reason for off-street parking ordinances

Employee Behavior 2 of 2

Employees Must Park in Their Parking Lot if they Drive to Work

Measures to Reduce "Cheating" = Parking in the Neighborhood

- Soft, pre-operational measure: data collection
  - Operate the system for a time, perhaps even a year, before actually collecting or distributing money
  - Self-identified non-drivers are recognized, thanked, and asked to provide details as to how they are getting to work without driving
- Soft, In-Operation Mode: New non-drivers are thanked and interrogated as to how they do it
- **Hard: cameras or RFID sensors can identify employees walking into the work perimeter from the neighborhoods**

Hard-to-Not-Drive Example

Fictional, Simplified Case with Pricing and Payout Considered per Day, *Page 1*

- Employment Center (factory and office)
- Outside Hemet, California
- 100 employees; parking lot has 100 spaces
- No Transit, 110 degree temperature with poor roads for biking, culture of not car-pooling
- Before installing
  - 99 drive
  - 1 bikes

Hard-to-Not-Drive Example

Fictional, Simplified Case with Pricing and Payout Considered per Day, *Page 2*

- Dividend-Account Parking charges $10/day
- After installing
  - 99 drive
  - 1 bikes
- Total collected each day: $990
- Each employee gets $9.90 earnings per day ($990/100)
- Each driver loses 10 cents per day
- The “crazy” bike rider gets $9.90 per day extra

Hey, isn’t this an improvement? I would say the “crazy” bike rider is earning his money!

If another employee bikes, the drivers would lose 20 cents per day and the bike riders would get $9.80 per day. If the company president rented out the 2 extra spaces for $10 per day, the drivers would lose nothing and the bike riders would get $10 per day. Biking would increase by 100%! **What’s wrong with that?**

Results of 3 Actions, Including Cash-out

Case (#1), Reference Patrick Siegman's article in Bicycle Pedestrian Federation

- Company: CH2M Hill
  - Location: Bellevue, WA (Seattle suburb)
  - Engineering Firm with 430 employees
- Actions
  - $54/month (1995 $'s), *to not drive*
  - Improved Transit
  - Improved Bike/Ped facilities

CH2M Hill Work Trips		
Mode	***Before***	***After***
Drive Alone	**89%**	**54%**
Carpool	**9%**	**12%**
Bus	**1%**	**17%**
Bike, Walk	**1%**	**17%**
	100%	***100%***

Since these changes are brought about by more than just cashout, this case is not used in the tabulation of cashout results (next chart)

Cash-Out Results

(11 Locations, 3 Groups, 1995 Dollars)

Money Matters !!!!!

- Reference: *How to Get Paid to Bike to Work: A Guide to Low-traffic, High- Profit Development* by Patrick Siegman*. Published in *Bicycle Pedestrian Federation of America*, 1995.
- 3 Largest Responses
  - 38%, 36%, 31%
- 3 Smallest Responses
  - **15%** , 18%, 24%
- Responses are the *change;* car vacancy rates would be larger

*Patrick Siegman, of Nelson Nygaard

Impact of Financial Incentives on Parking Demand

Location	Scope	1995 dollars per mo.	Parking Use Decrease[1]
Group A: Areas with little or no public transportation			
CenturyCityDistrict, West Los Angeles	3500 employees at 100+ firms	$81	15%
Cornell University, Ithaca, NY	9000 faculty & staff	$34	26%
San Fernando Valley, Los Angeles	1 employer, 850 employees	$37	30%
Costa Mesa, CA		$37	22%
Average for Group		**$47**	**23%**
Group B: Areas with fair public transportation			
Los Angeles Civic Center	10000+ employees, several firms	$125	36%
Mid-Wilshire Blvd., Los Angleles	1 mid-size firm	$89	38%
Washington DC Suburbs	5500 employees at 3 worksites	$68	26%
Downtown Los Angeles	5000 employees, 118 firms	$126	25%
Average for Group		**$102**	**31%**
Group C: Areas with good public transportation			
University of Washington, Seattle Wa.	50,000 faculty, staff & students	$18	24%
Downtown Ottowa, Canada	3500+ government staff	$72	18%
Bellevue, WA	1 firm with 430 employees	$54	39%[2]
Average for Group, but not Bellevue Washington		**$45**	**21%**
Over All Average, Excluding Bellevue Washington			**25%**

[1] **Parking vacancy would be higher!** [2] **Not used, since transit & walk/bike facilities also improved.**

Dividend-Account Parking Oceanside Civic Center Parking Garage

Money Flow Calculations

Simplifying Assumptions

1. All workers are at this location for 9 hours, each day they report to work (8 hours of work and 1 hour for lunch)
2. All workers work 8 AM to 5 PM
3. Evening hours are 5 PM to 9 PM
4. All workers that work on week-ends also work on week days, for a total of 7*9 = 63 hours at the work location per week

Dividend-Account Parking

Money Flow Calculations

Notation Conventions	
Letters	**Meaning**
N	Number
DAP	Dividend Account Parking
VP	Value Priced
WE	Week End
WD	Week Day
WH	Work Hours, Meaning 8 AM to 5 PM
AH	After Hours, Meaning 5 PM to 9 PM

Dividend-Account Parking

Money Flow Calculations

Assume This is the "Value-Price" of the Parking

Use $10 per 9 Hours at the Work Site

Value	Units
1.8519	Cents per Minute
1.11	Dollars per Hour

Dividend-Account Parking

Money Flow Calculations

Assumed Values Used in the Following Performance Assesment		
Description	**Name**	**Value**
Number of parking places	N_DAP	250
Number or employees	N_Emp	250
% employees that drive on week day & week end	%Drive	80
Value-price to park, per 9 hours day (8 hours work + lunch)	VP_9Hrs	$ 10.00
% employees that work on Sat. and on Sun.	%WE	20
Yearly bonus paid to all workers	Y_Bonus	$100.00
Non-Workers Use This Per-Cent of the Parking That Is Not Used by Workers		
Week Day, Work Hours	%NonWrkWDWH	50
Week Day, After Hours (5 to 9)	%NonWrkWDAH	30
Week End, Work Hours	%NonWrkWEWH	50
Week End, After Hours (5 to 9)	%NonWrkWEAH	30

Dividend-Account Parking

Money Flow Calculations

Calculations to get the Weekly Earnings From Employees & the Weekly "AddIns" Required, per Employee			
Description	**Formula**	**Name**	**Value**
Number of Employees That Drive on a Week Day	N_Emp * %Drive / 100	**N_DrWD**	200
Money From Employees on a Week Day	VP_9Hrs * N_DrWD	**$_AllE_WD**	$ 2,000
Number of Employees That Work on a Week End	N_Emp * %WE / 100	**N_WrkWE**	50
Number of Employees Driving on a Week-End Day	N_WrkWE * %Drive / 100	**N_DrWE**	40
Money From All Employees Each Week-End Day	VP_9Hrs * N_DrWE	**$_AllWE**	$ 400
Weekly Money From Employees From Both the Week End & the Week Days	5 * $AllE_WD + 2 * $_AllWE	**$_AllE**	$ 10,800
Total Hours at This Location Per Week	N_Emp * 9 * 5 + N_Emp * %WE / 100 * 9 * 2	**HrsPerWeek**	12150
Weekly Earnings for an Employee at the Location for 45 Hours	$_AllE * 45 / HrsPerWeek	**PerWeek45**	$ 40.00
AddIn for an Employee at the Location for 45 Hours per Week	5 * VP_9Hrs - PerWeek45	**AddIn45**	$ 10.00
Weekly earnings for an employee at the location for 63 hours	$_AllE * 63 / HrsPerWeek	**PerWeek63**	$ 56.00
Per Week AddIn for an Employee at the location for 63 Hours per week	7 * VP_9Hrs - PerWeek63	**AddIn63**	$ 14.00

Dividend-Account Parking

Money Flow Calculations

Calculation of the Weekly Amount Generated by Spaces Not Used by Workers, Week Day Work Hours (8 to 5)			
Description	**Formula**	**Name**	**Value**
Spaces Available for Non-Workers, Work Day, Work Hours	N_DAP - N_DrWD	**S_4NW_WDWH**	50
Spaces Used by Non-Workers, Work Day Work Hours	S_4NW_WDWH * %NonWrkWDWH / 100	**SNW_WDWH**	25
Money from Spaces Used by Non-Workers Per Day	SNW_WDWH * VP_9Hrs	**$NW_WDWH**	$ 250
Money from Spaces Used by Non-Workers Per Week	5 * $NW_WDWH	**W$NW_WDWH**	$ 1,250

Dividend-Account Parking

Money Flow Calculations

Calculation of the Weekly Amount Generated by Spaces Not Used by Workers, Week Day After Hours (5 to 9)			
Spaces Available for Non-Workers, Work Day, 5 to 9, AKA After Hours	N_DAP	**S_4NW_WDAH**	250
Spaces Used by Non-Workers, Week Day After Hours	S_4NW_WDAH * %NonWrkWDAH / 100	**SNW_WDAH**	75
Money From Spaces Not Used by Workers, Week Day After Hours	(4/9) * VP_9Hrs * SNW_WDAH	**$NW_WDAH**	$ 333
Money per Week from Spaces Not Used by Workers, Week Day After Hours	5 * $NW_WDAH	**W$NW_WDAH**	$ 1,667

Dividend-Account Parking

Money Flow Calculations

Calculation of the Weekly Amount Generated by Spaces Not Used by Workers, Week End Work Hours (8 to 5)			
Spaces Available for Non-Workers, Week End Work Hours	N_DAP - N_DrWE	**S_4NW_WEWH**	210
Spaces Used by Non-Workers, Week End Work Hours	S_4NW_WEWH * %NonWrkWEWH / 100	**SNW_WEWH**	105
Money From Spaces Used by Non-workers Per Week-End Day, Work Hours	SNW_WEWH * VP_9Hrs	**$NW_WEWH**	$ 1,050
Money From Spaces Used by Non-workers On the Week End After Hours, Per Week	2* $NW_WEWH	**W$NW_WEWH**	$ 2,100

Dividend-Account Parking

Money Flow Calculations

Calculation of the Weekly Amount Generated by Spaces Not Used by Workers, Week End After Hours (5 to 9)			
Spaces Available for Non-Workers, Week End After Hours	N_DAP	**S_4NW_WDAH**	250
Spaces Used by Non-Workers, Week End After Hours	S_4NW_WDAH*%NonWrk WDAH/100	**SNW_WDAH**	75
Money From Spaces Used by Non-workers Per Week-End Day After Hours	4/9 * SNW_WDAH * VP_9Hrs	**$NW_WDAH**	$ 333
Money From Spaces Used by Non-workers on Week-End Days After Hours, Per Week	2 * $NW_WDAH	**W$NW_WDAH**	$ 667

Dividend-Account Parking

Money Flow Calculations

The Weekly Earnings From Non-Employees, the Weekly "AddIns" Required, the Weekly Surplus Generated, the Yearly Surplus, and the Yearly Surplus After Giving Employees a $100 Per Year Bonus			
Description	**Formula**	**Name**	**Value**
Weekly Money Earned by the spaces not taken by workers	W$NW_WDWH + W$NW_WDAH + W$NW_WEWH + W$NW_WEAH	**W$NW**	$ 5,683
Weekly Money Required to Pay All of the AddIn Amounts	N_DrWD * AddIn45 + N_DrWE * AddIn63	**AddInPerWeek**	$ 2,560
Weekly Money Left Over After Paying Add Ins	W$NW - AddInPerWeek	**$PerWeek**	$ 3,123
Yearly Money After Paying Add Ins From the Money From Non-Workers	52 * $PerWeek	**$PerYear**	**$ 162,413**
Yearly Money After Paying Add Ins and Also a $100 Bonus Per Year for Each Employee	$PerYear - $100 * N_Emp	**$PerYear**	**$ 137,413**

Dividend-Account Parking

Money Flow Calculations

3 Cases of Dividend-Account Parking Performance Oceanside Civic Center Garage			
	Baseline	**Worse**	**Better**
% employees that drive on week day & week end	80%	85%	75%
% employees that work on Sat. and on Sun.	20%	25%	15%
% Parking Not Used by Workers, That is Used by Non-Workers			
Week Day, Work Hours	50%	45%	55%
Week Day, After Hours (5 to 9)	30%	25%	35%
Week End, Work Hours	50%	45%	55%
Week End, After Hours (5 to 9)	30%	25%	35%
Yearly Amount Left Over After Paying Add-Ins	**$162,413**	**$125,242**	**$210,374**
Amount Left After Paying Add-Ins & $100 Bonus	**$137,413**	**$100,242**	**$185,374**

Back up Slides

Measures to Get 32%

Estimated Reduction

- Predictions, Regional Transportation Plans — 10%
- Stop expanding most roads and all freeways — 2%
  - No need, Eliminate congestion with less driving
- Reallocate freeway-expansion $$$ to **transit** — 2%
- **Payment methods**, **to increase fairness & choice**
  - Demonstration projects: Dividend-Account Parking
  - **Legislation**
    - Replace Bundled-Cost or Bundled-Benefit Parking — 8%
    - Equitable and environmentally-sound road-use fees — 8%
- **Smarter growth**, complete streets, bike classes — 2%

32%

Climate Literacy

THEREFORE BE IT RESOLVED, that the California Democratic Party reinforces the need for all high school students to know, before they graduate, and elected officials to know, acknowledge, and address, as soon as possible, (1) both the existence of and the reason for anthropogenic climate change; (2) its potential for harm; (3) the difference between stabilizing the climate at a livable level and destabilization; (4) science-based, climate-stabilizing, GHG reduction targets; (5) the primary variables and considerations in identifying those targets and (6) the approximate amount of life style and technology change required to achieve those climate-stabilizing targets.

XXX Implementation Example

The City could have the vendor operate the system, for the first 10 years. Over those years, the vendor would be motived to debug the system and continue to look for operational efficiencies. The vendor could receive 10% of the revenue, for the first 5 years; 5% of the revenue, for the next 3 years; and 2%, for the final 2 years. If 600 cars are parked for 8 hours, 200 days per year, at 50 cents per hour, then the yearly revenue would be $480,000. The vendor would collect $240,000 over the first 5 years, $72,000 over the next 3 years, and $28,800 over the last two years.

How Bad Could It Get?

Governor Brown to the Pope:

Humanity must

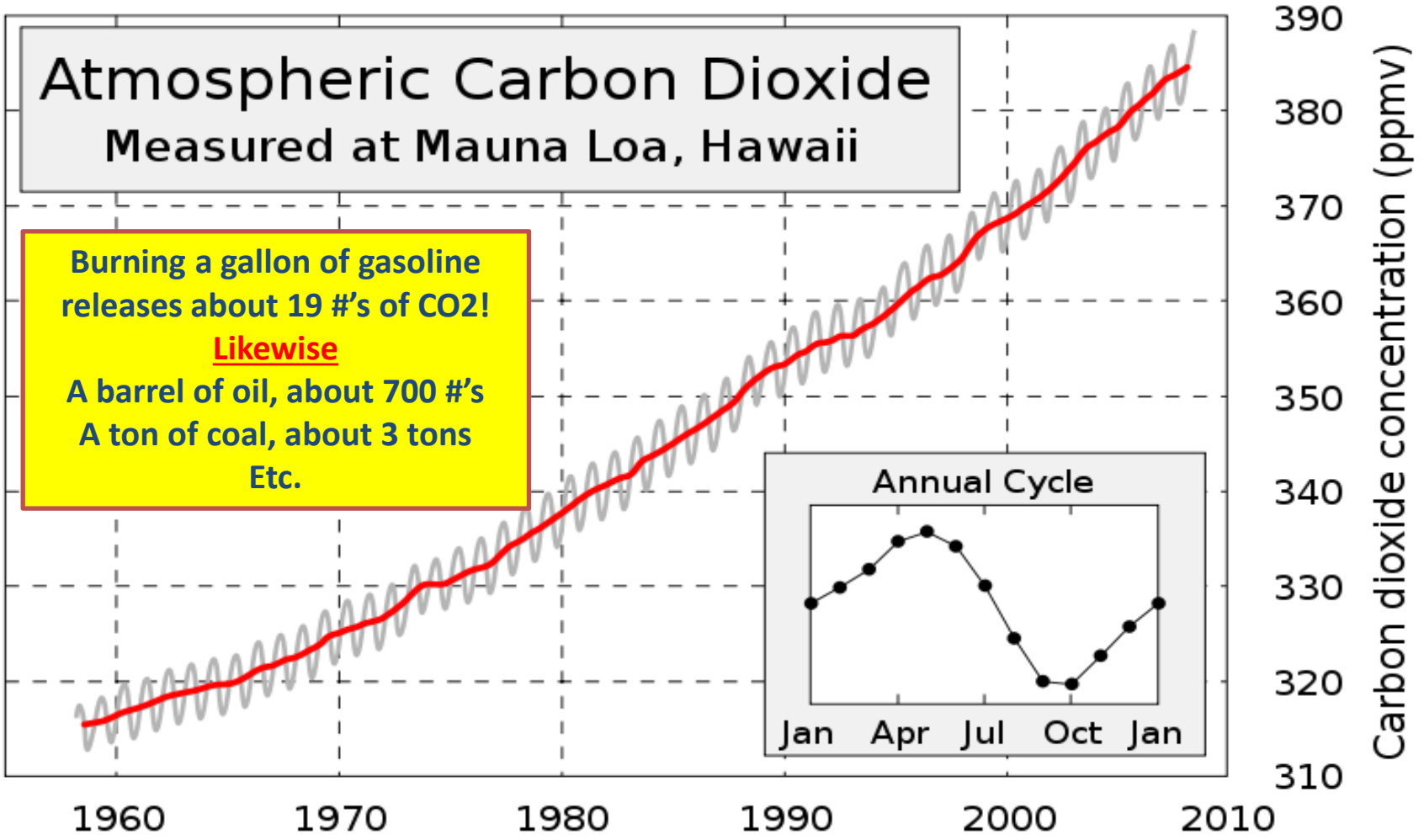
Reverse Course* **or** ***Face Extinction***

*** Must be quantified***

Climate Data

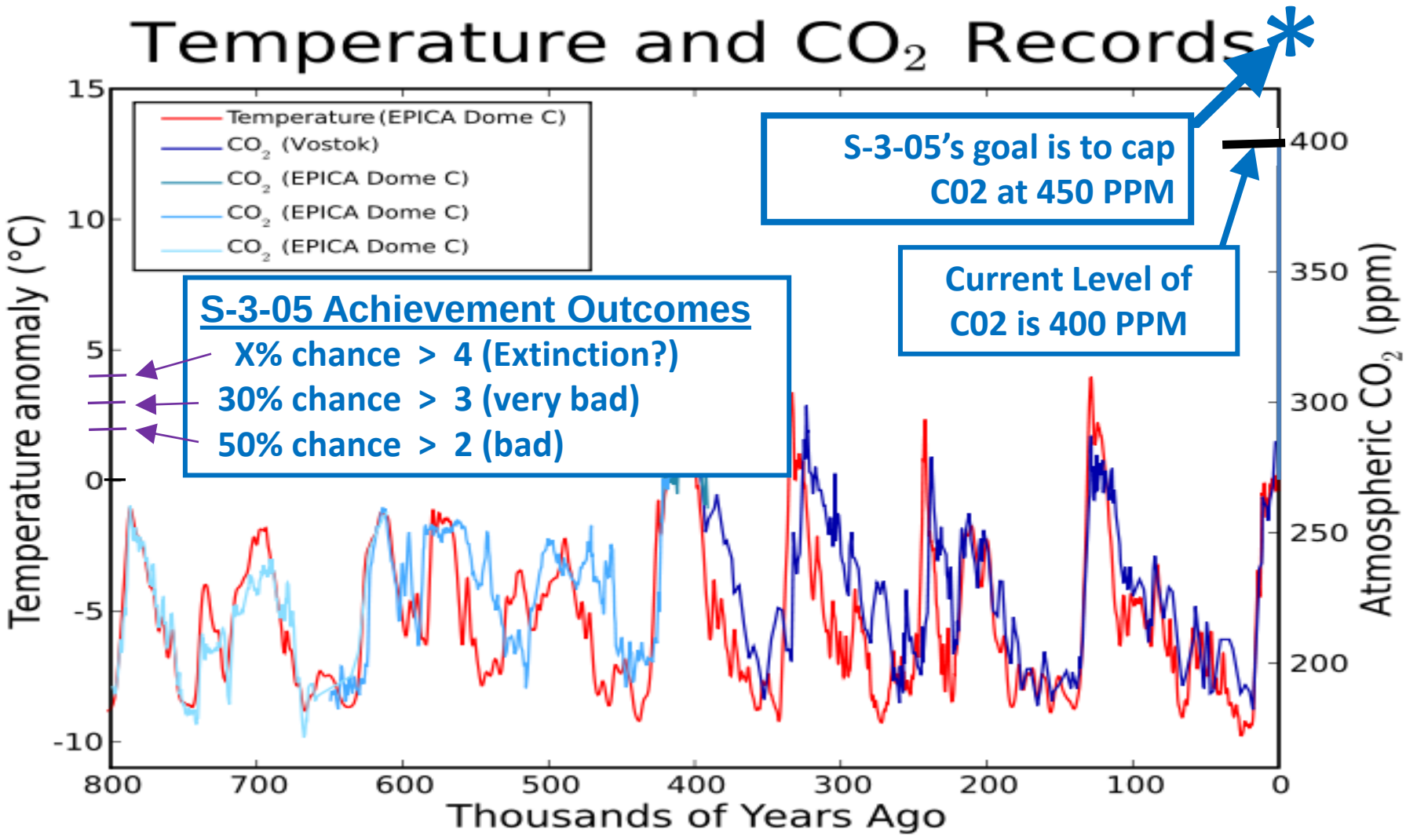
Currently 400 PPM! *

- Keeling Curve:
  http://en.wikipedia.org/wiki/An_Inconvenient_Truth#Scientific_basis



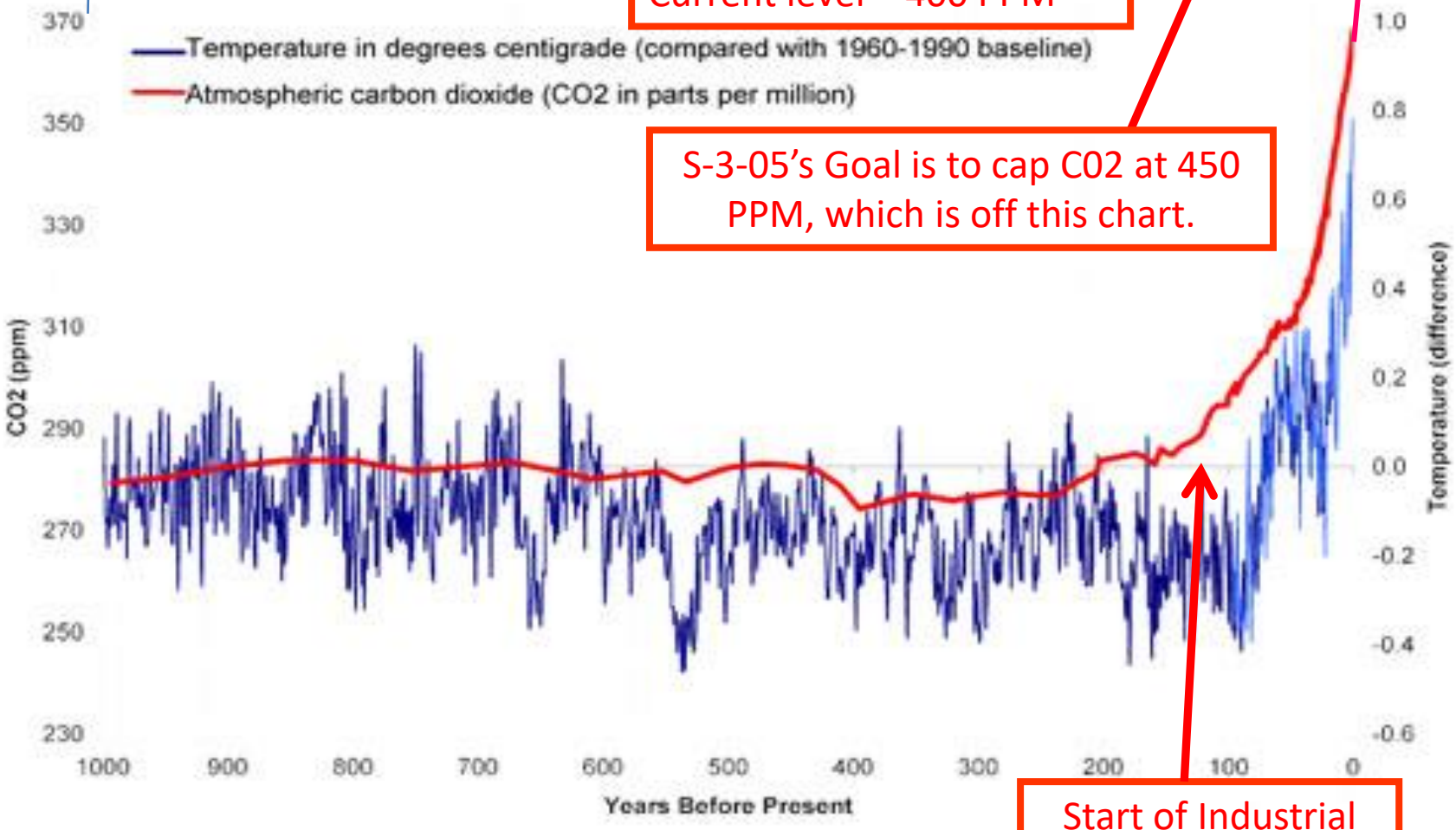
Our Climate Crisis

- From: http://en.wikipedia.org/wiki/An_Inconvenient_Truth#Scientific_basis



Our Climate Crisis

- Earth & Space Research (ESR) website: http://www.esr.org/outreach/climate_change/mans_impact/man1.html



Fixing the Problem

We must stabilize the value of the earth's atmospheric CO2_e

CO2_e Emissions | **Sequestration (Photosynthesis)**

$E_N + E_A + E_{WFB}$ **>** → **Positive Slope**

$E_N + E_A + E_{WFB}$ **=** → Zero Slope

$E_N + E_A + E_{WFB}$ **<** → **Negative Slope**

S

Natural: rotting, fire, digestion. respiration

Anthropogenic: combustion of fossil fuel, methane, other

Warming **F**eed **B**ack: such as methane from melting permafrost

Growth of plants on Earth

The Warming Feed Back term is the wild card. It must not become dominant.

If Anthropogenic emissions were to be sufficiently low (80% below 1990 levels has been allocated to developed countries), the slope would be zero, thus capping the value of the Earth's atmospheric CO2_e

Motivation for Change

- Fairness to individuals
  - Costs no longer hidden
  - Costs avoided or recovered, by not using parking
- Less driving, to reduce environmental harm
  - Motivates choosing alternative modes
  - Less driving to find parking
- Cost Effective Development
  - Less parking needed reduces land and building costs

Goals, 1 of 2

- One agency operates all parking
- Nearly all parking is shared
- Parking costs are effectively unbundled
  - From wages and rents
  - From costs of goods and services
- No change to how parking gets built
  - Generally, municipalities require & developers build

Goals, 2 of 2

- Priced right
  - Value Priced: Base price derived from costs
  - Driver demand determines a congestion price
- No need to search for parking
  - Directions to parking that meets user's needs
  - Accurate price predictions
- Each parking space's use is archived
  - Supports informed decisions
- Privacy and the needs of the disabled are supported

Definitions and Methods, 1 of 6

- Definition & Examples of ***Parking Beneficiary Group***
  - Owners
    - Private investors or governments operating public parking
  - Those losing money due to provided parking
    - Employees
    - Apartment renters or condominium owners
    - Hotel or restaurant patrons
    - Shoppers
  - Those offered specific parking
    - Driving-age students at a school with parking
    - Driving-age train riders using a station with parking

Definitions and Methods 2 of 6

- How to Effectively Unbundle the Cost or the Benefit
  - Price charged per minute
    - Base price rate established to cover all costs
    - Congestion price rate
      - Dynamically set as a function of occupancy rate
      - Charge is time average, if rate changes, while car is parked
  - Parking generally available to all drivers
  - Earnings distributed to members of *Beneficiary Group*
    - Calculation of individual's earnings depends on situation

Definitions and Methods, 3 of 6

- Calculation of monthly earnings
  - If parking is provided for several groups, each group's portion of the earnings is proportional to its original contribution to cost (Mixed use case)
  - Each beneficiary group's total is divided up among its members
    - Condominium owners: proportional to spaces effectively purchased
    - Renters: proportional to spaces effectively renting
    - Shoppers: proportional to money spent
    - Employees or students of driving age: proportional to time spent at work or school
    - Train riders of driving age: proportional to time spent on round trips

Definitions and Methods, 4 of 6

- For congestion pricing, *define* ***Cluster of Parking***
  - 20 to 40 contiguous spaces nearly equal in desirability
  - Assigned the same price
- Pricing
  - Base price
    - Covers all costs $r_{BaselineHourly} = \frac{(r_{Invesment} \times v_{Parking}) + c_{YOPD}}{(n_{HoursPerYear} \times f_{TO})}$
    - Report's Page 13 & 14 provides details
  - Congestion price, for each cluster

$$r_{HourlyRate} = r_{BaselineHourly} \times \left(B^{(30-V)/5}\right), for\ V < 30;\ r_{BaslineHourly}, otherwise$$

- B is nominally 2; adjusted to keep vacancy above 15%
- V is the vacancy % rate (Report's Eq. 2, Table 2, Pages 14 & 15)

Definitions and Methods, 5 of 6

- Pricing predictions
  - For any set of dates, start times, durations, and destinations
  - Availability of predictions
    - Broadcast into navigational units
    - Website or phone
- Help to find desired parking
  - Driver gives times and locations and stipulates . . .
    - Max price, to get space at minimum walk distance
    - Max walk distance, to get space at minimum price
  - Voice-activated navigational system for ease and safety

Definitions and Methods, 6 of 6

- Monthly statements
  - All parking charges and earnings
    - First, within state
    - Then, within nation
    - Finally, within North and South America
  - Customer selects presentation detail
    - Less detail for ease and more privacy
    - More detail to know and adjust parking decisions
  - Packaged with other statements
    - All utilities, transit use, road use

Implementation Plan, 1 of 3

- Prototype design
  - Most likely a Climate Action Plan Mitigation Measure
- Requirements document to support request for proposal (RFP)
- Winning proposal leads to design
  - Hardware selection and design
  - Software generation
- Prototype installation
  - Most likely a Climate Action Plan Mitigation Measure
  - Debug
  - Adjustments to satisfy stakeholders

Implementation Plan, 2 of 3

- Government agency develops and executes full installation strategy
  - To minimize impact on institutions
  - To maximize early success and driving reductions
    - Large employment centers with “free” parking
    - Train stations with large, “free” parking lots
  - Supported by new law that requires cooperation but very little effort, from . . .
    - Private and public institutions
    - Individuals

Implementation Plan, 3 of 3

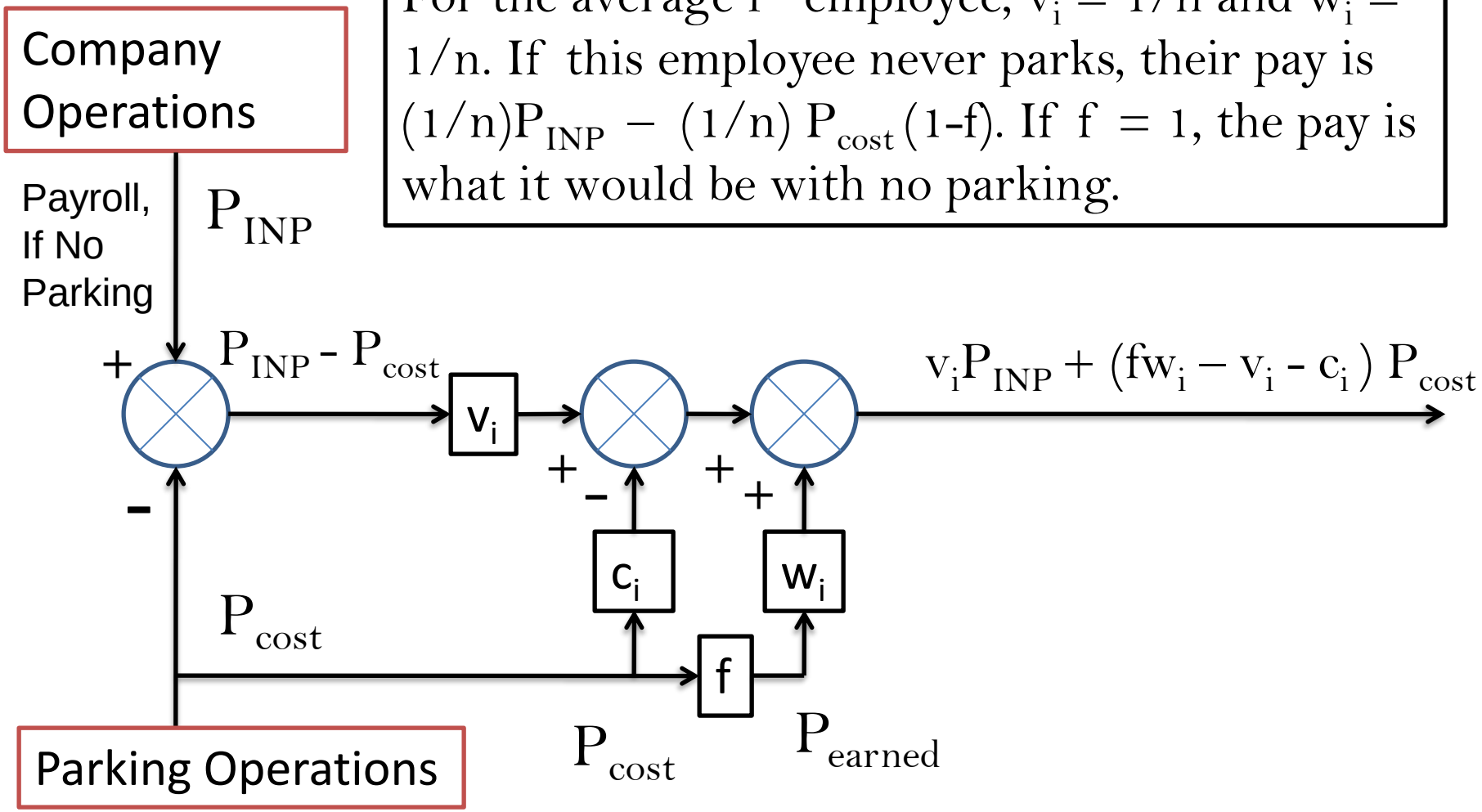
- Basis for a new law supporting installations
  - To provide equal protection of the law
    - Government has required parking for 50 years
    - Those driving less than average often lose money
  - Prototype will have demonstrated feasibility
  - Global warming considerations show subsidized parking to be a public nuisance
    - Global warming will likely cause a human catastrophe
    - Short term strategies are critical
    - Electric cars and getting most electricity from renewables will take decades
    - Properly pricing parking is relatively cheap and quick (5 years)

Unbundle Flow Diagram Definitions

Variable	Definition
P_{INP}	Company payroll if there were no parking costs
P_{cost}	Total parking cost. Price will be sized to recover this.
P_{earned}	Parking earnings equals parking cost minus collection cost
v_i	Employee value. Fraction of available pay. For the average employee, 1/n
c_i	Fraction of parking cost paid. Zero, if the employee never parks.
f	Parking earnings divided by parking cost. Close to 1 for efficient collection
w_i	time worked divided by total time worked of all employees. If average, this is 1/n.

Unbundle Flow Diagram

For the average i^{th} employee, $v_i = 1/n$ and $w_i = 1/n$. If this employee never parks, their pay is $(1/n)P_{INP} - (1/n)\,P_{cost}(1\text{-}f)$. If $f = 1$, the pay is what it would be with no parking.



Mike Bullock, 1 of 2

- Personal
  - Married, two daughters, 3 grand daughters, 1 grandson
    - Daughter Laura Bullock White (Berkeley)
    - Heidi Bullock (Oceanside)
  - Moved from Cupertino to Oceanside in April 2007
  - Oceanside home (1800 Bayberry Dr) and 4-plex (506 N. Ditmar)
  - Swims with and competes for Oceanside Swim Masters
- Education
  - BSEE, Lamar University
  - MSE, University of Texas at El Paso
- Professional
  - Lockheed Martin Systems Engineer, 1971 to 2007
    - Last 2 years, Space Based Infrared System (SBIRS, satellite to detect and track missiles)
    - 10 Years previous: Milstar (communication satellite)
      - Verification of antenna pointing accuracy
      - Antenna pointing calibration

Mike Bullock, 2 of 2

- Most Recent Activities
  - California Democratic Party
    - Delegate, 76TH AD
    - Elected member of the San Diego County Central Committee
    - CDP Resolutions and Platform

San Diego County's Climate Action Plan Misadventures

- The Sierra Club proposed Dividend-Account parking, as a demonstration project for County employees
- The County argued it was infeasible
- Superior Court Judge Taylor ruled that the County failed to show it was infeasible
- The County appealed on a 3-2 vote
- This is the 2nd failed CAP for the County. The first was ordered rescinded on the same issue and resulted in a published Appellant Court Ruling

DRAFT

These entities or others may become interested in issuing a Request for Information as described herein

City of Encinitas in cooperation with the cities of Oceanside, Carlsbad, Solana Beach, and Del Mar, the United States Marine Corps Base at Camp Pendleton, and North County Transit District

REQUEST FOR INFORMATION (RFI) OR A REQUEST FOR AN INDICATION OF INTEREST (RFIOI) IN RESPONDING TO AN RFI

Design, Install, and Operate a Dividend-Account Car Parking System at Selected Work Locations for Employees

CM RFI 18-XX

Date Issued: Month j, 2018 or 2019
Questions Due: Month k, 2018, 5:00 PM
Proposals Due: Month l, 2018, 2:00 PM

IF YOU DID NOT DOWNLOAD, OR DIRECTLY RECEIVE THIS DOCUMENT FROM THE XXX WEBSITE AT WWW.xxx.GOV/BIDS, YOU ARE NOT LISTED AS AN OFFICIAL DOCUMENT HOLDER FOR THIS SOLICITATION AND WILL NOT BE NOTIFIED BY THE CITY OF ADDENDA ISSUED. YOU MUST ACKNOWLEDGE ANY ADDENDA ISSUED IN YOUR SUBMITTAL OR RISK BEING CONSIDERED NON RESPONSIVE. PLEASE BE SURE TO VISIT THE WEBSITE ABOVE TO REGISTER AS A DOCUMENT HOLDER FOR THIS SOLICITATION.

City of XXX
City Manager's Department – Environmental Services
Attn: YYY

Table of Contents

I. INTRODUCTION

The City of Encinitas, or one of the other entities shown above, may want, at some future date, to request information that will aid in the selection of a vendor for a possible Dividend-Account Car-Parking System Demonstration pilot on behalf of the themselves and other entities, such as Oceanside, Carlsbad, Encinitas, Solana Beach, and Del Mar, the United States Marine Corps Base at Camp Pendleton, and the North County Transit District (collectively referred to as "Partners"). The Partners may seek to evaluate the benefits, effectiveness, and popularity of a Dividend-Account Car Parking System for employees in the north coastal region of San Diego County through the operation of a temporary pilot program lasting from twelve (12) to thirty-six (36) months. It could become the goal of the Partners to determine whether permanent Dividend-Account Car-Parking systems would be successful in our region based on the outcome of a pilot program. Partners may decide to be actively coordinating with the San Diego Association of Governments (SANDAG), the agency that may be leading regional Dividend-Account Car-Parking Systems coordination around topics including data collection and monitoring, public outreach, policy/regulations. The partners are more likely to want to proceed if there is an identified interest on the part of vendors to respond to an actual RFI. To save time, the rest of this document is written as if one of the Partners has already decided to issue an RFI. However, that is not currently the case. This document, perhaps best described as Request for Indication of Interest has been adapted from a dock-less bike share RFI. Thank you for considering this concept. Please indicate if you would be interested in designing and operating such a system.

Mike Bullock

Oceanside, CA 92054
760-754-8025; Cell: 760-421-9482

A. Location

The study area includes the cities of Oceanside, Carlsbad, Encinitas, Solana Beach, and Del Mar, and the United States Marine Corps Base at Camp Pendleton, all of which are located in northern San Diego County along the coast. The region has a mild climate with average temperatures ranging from the mid-60s in the winter to mid-80s in the summer. The terrain is relatively flat along the coast, particularly when traveling in the north-south directions. Each of the cities have dense urban centers of varying sizes with grid street plans and relatively flat terrain. Generally, most of the cities in the study area have more hilly terrain and a suburban layout east of Interstate 5 (I-5). The combined population of the cities is approximately 365,000 and the combined geographical area of the cities is approximately 106 square miles. Highway 101 runs along the coast through each of the cities for a contiguous distance of approximately 20 miles. Highway 101 is one of the most popular bicycling routes in the San Diego region. North County Transit District (NCTD) operates two rail lines and 34 bus routes throughout North County. Thirteen rail and/or bus transit centers are located within the study area. Total annual NCTD ridership is approximately 10.7 million passengers. The Camp Pendleton Marine Corps base is located just north of Oceanside and serves as a major employer for both enlisted and non-enlisted personnel. The southwest corner of the base adjacent to Oceanside Harbor and west of I-5 features relatively flat terrain and could benefit from increased biking connections.

Table 1: General information about the region

	Population[1]	Employment[2]	Size (sq. mi.)	Coastline (mi.)
Oceanside	175,948	35,662	42	3.5
Carlsbad	112,930	66,596	39	6.3
Encinitas	61,928	22,443	20	6
Solana Beach	13,494	7,843	3.6	1.5
Del Mar	4,274	3,474	1.8	2.9

[1]SANDAG Current Estimates, 2016
[2]U.S. Census Bureau, 2015

B. Background

The cities in the North County coastal region of San Diego County are increasingly aware of the need to reduce local greenhouse gas (GHG) emissions to limit the effects of climate change

while offering viable transportation alternatives to driving alone. Many of the cities have adopted Climate Action Plans (CAPs) or are in the process of developing CAPs. CAPs establish environmental initiatives by which cities aim to achieve GHG emissions reduction goals and targets. Transportation, especially travel via single occupancy vehicle, is a major source of GHG emissions in North County. Facilitating safe, convenient, and affordable alternative transportation options is often a component of these plans and initiatives. Car parking systems that increase economic fairness and choice, compared to bundled-employee-benefit car parking systems (erroneously called “free parking”) at places of employment will reduce single occupancy vehicle (SOV) commuting and increase the need for first/last mile solutions. For this reason, this RFI will be provided to those firms that would benefit from increasing the demand for first/last mile solutions.

The Marine Corps Mobility Transformation Strategy calls for demonstration projects at installations like Camp Pendleton to meet official business mobility with capabilities that are smarter, more efficient, more accessible, and cheaper.

Partners will seek to coordinate with SANDAG on Dividend-Account Car-Parking Systems data analysis while ensuring the selected Dividend-Account Car-Parking Systems vendor can meet data sharing requirements that assist in quantifying the impacts of Dividend-Account Car-Parking Systems on vehicle miles traveled (VMT), access to transit, economic development, and other benefits.

Offering and promoting programs, like Dividend-Account Car-Parking Systems, that replace vehicle trips with active transportation and/or transit trips, is one of the ways the Partners can help to reduce emissions while offering more efficient and more affordable transportation modes for residents, employees, and visitors. A Dividend-Account Car-Parking System is a system which operates employee car parking for the financial gain of the employees by value-pricing the parking and distributing the earnings, which are the revenue minus a fair cost of operation, among employees. The earnings are provided in proportion to the time an employee spends on the work premises. There may also be an “add in” payment provided by either the employer or from a grant, such as a Greenhouse Gas Reduction Fund (GGRF) grant, sized so that an employee that continues to drive every day will lose no money under the system. This system will in effect pay each employee an additional amount of income for each day they get to work without relying on the single occupancy vehicle (SOV) mode. See Reference 1 for more details on the Dividend-Account Car Parking System. The References are listed at the end of Section II, Request for Information.

C. Purpose and Objectives of the RFI

The purpose of this Request for Information (RFI) is to identify vendors with the resources to pilot a Dividend-Account Car-Parking System program in the Partners’ jurisdictions, in accordance with the objectives set forth in this RFI.

The Partners seek a qualified vendor to design, establish, implement, operate, and maintain an innovative, valuable, and mutually-beneficial Dividend-Account Car-Parking System pilot program. The pilot should enable and encourage residents, employees, and visitors to affordably and conveniently travel by car pool, transit, active transportation or some combination of these modes. The pilot should also facilitate a decrease in vehicular parking demand, vehicular traffic, and (GHG) emissions, while promoting active and healthy transportation options.

Qualified vendors are invited to submit proposals based on the information provided in this RFI.

This RFI is a mechanism for gathering information and does not constitute a binding procurement process, however, selection of goods and/or services may result from information obtained through this RFI process, where deemed appropriate. The Partners, jointly or individually, are not obligated to make an award or issue a Request for Proposal as part of this process. In addition, the Partners, in their sole discretion, may decide to engage in direct question and answer sessions with one or more vendors and may decide to enter into an agreement or issue permits based upon those discussions/interviews or a resulting proposal.

If a single demonstration pilot project or multiple demonstration pilot projects were successful, given the severity of our anthropogenic climate change crisis, it is anticipated that other employers will decide to install Dividend-Account car-parking systems. Since municipal governments are required under CEQA to adopt General Plan Updates (GPUs) that include, perhaps using a Climate Action Plan, a set of enforceable measures that will achieve climate-stabilizing targets, and since cars and light-duty trucks (LDVs) are the largest category of GHG emissions, it is further anticipated that municipal governments will, over time, update their off-street parking ordinances to include requirements for Dividend-Account Car Parking systems. Reference 2 shows that this system is adaptable to all types of parking. A selected vendor would have access to a market of more than 365,000 residents living in the north coastal region, more than 135,000 employees that work in the region, and others that visit the region for leisure.

Potential Dividend-Account Car-Parking Systems program marketing opportunities may include, but are not limited to: being listed as a preferred vendor on the Partners websites, co-branded sustainability campaigns, signage, event sponsorship, press releases, and social media announcements.

D. Obtaining RFI Documents

The website for this RFI and related documents is: PlanetBids (http://www.encinitasca.gov/bids). All correspondence will be posted on the PlanetBids website. It is the responsibility of Proposers to check the website regularly for information updates and RFI clarifications, as well as any RFI addenda. To submit a proposal, a Proposer must be registered with the City of Encinitas as a vendor. To register as a vendor, go to the following link (http://www.encinitasca.gov/bids), and then proceed to the "New Vendor Registration" link. All addenda will be available on the PlanetBids website.

E. RFI Contact

The City of Encinitas will receive questions and information requests on this RFI up to **5:00 p.m. on some TBD Month "n", 2018**. All questions regarding the RFI documents shall be submitted through PlanetBids. All project correspondence will be posted on the PlanetBids website. It is the responsibility of the Proposers to check the website regularly for information updates, clarifications, and addenda.

II. REQUEST FOR INFORMATION or REQUEST FOR INDICATION OF INTEREST

This section describes the information being requested by the Partners to learn about prospective **Dividend-Account Car-Parking System ("System")** vendors and optionally to select a vendor to operate in the Partners' jurisdictions. Interested vendors must include all

information outlined below in a submitted proposal.

A. Dividend-Account Car-Parking System ("System") Pilot Program Requirements

Vendors responding to this RFI must describe their proposed system that is capable of providing the following services and shall describe these services in their submission:

1. System pilot program(s), as described in Reference 1, to include the following installed and maintained capabilities:
2. A capability to establish and maintain a database of System Vehicles, System Members, System Parking and System Accounts. A System Account includes the mailing name and address of a person that has agreed to receive payments and pay bills that are the result of the implementation of the System and the actions taken by the person, or some other person driving the System Vehicle or System Vehicles, as described herein. Such a person is a "System Member." A "System Vehicle" is one that can be identified when it is parked in the System and one that is associated with a System Account and System Member. A System Member may take responsibility to pay for the cost of parking for multiple System Vehicles.
3. A capability to provide an easy method for Employees and others to become System Members by establishing a System Account with their chosen System Vehicles.
4. A capability to provide signage to designate System Parking areas well enough to prevent nearly all accidental entries by unauthorized vehicles, meaning vehicles that are not System Vehicles.
5. A capability to provide written materials to explain to employees and others that may want to become System Members how the System will work and why it is an important improvement to economic fairness and environmental outcomes, assuming a reasonable level of cooperation with the City and other affected groups, such as City vendors and sub-contractors.
6. A capability to operate the system for an agreed-upon amount of time, with no money exchanges, to establish a pre-install database of commute behavior including using questionnaires to determine how non-drivers say they are getting to work.
7. A capability to identify a System Vehicle within a minute of its being parked in a System Parking space and to store the System Vehicle identifier and the time it was recognized as being parked.
8. A capability to recognize when a System Vehicle exits a System Parking space, within a minute and to store the vehicle identifier and the recognized exit time.
9. A capability to identify vehicles that are NOT System Vehicles when they are in the System Parking area and are therefore trespassing, while they are in the System Parking area.
10. A capability to record the start time and end time of the trespassing vehicle's trespassing, to within an accuracy of 1 minute, as well as its license plate image, sufficient to support a conviction of trespassing.
11. A capability to send the license plate of the trespassing vehicle and its start time and end time of its trespassing to law enforcement officials with 5 minutes of the recorded start time of the trespass.
12. A capability to provide notice and evidence of this trespassing in real time and as stored

information for law enforcement so that they can then ticket and prosecute the owners of any and all vehicles that have been illegally parked in a System Parking space. It is anticipated that this would include the capture and storage of the license plate numbers of the vehicles that are parked in the System Parking lot whenever it is the case that the vehicle is not a System Vehicle.

13. A capability to compute an instantaneous charge rate (cost per minute) for the case of an application of “congestion pricing”, whereby an agreed-upon base price is increased by an agreed-upon congestion-pricing algorithm, designed to prevent the occupancy rate from exceeding an agreed-upon upper bound value, such as 90% occupied. An example of such an algorithm is in Reference 2.
14. A capability to compute and store the time that the charge rate changes, for the case of an application of a congestion-pricing algorithm. Note that this time is called the Rate Change Time. At these times, the rate could either increase, by the addition of a car being parked in a System Space or the rate could be decreased, by the subtraction of a car in a System Space.
15. A capability to accumulate a total charge for each System Member, where the total charge is the sum of the products of each parked duration time over which a fixed charge rate applies and the length of that time duration, for all the System Vehicles associated with the System Member, over a month. This total charge is called the System Member Monthly Charge (“SMMC”). Note that the Member may or may not be an employee.
16. A capability to compute the total charges, for all System Members over a month for the System. This amount is the Total System Monthly Charge (“TSMC”).
17. A capability to compute a Total System Monthly Earnings (“TSME”), which is the TSMC, reduced by a agree-to amount, such as 5%, where the 5% is taken out of the TSMC to cover the operator’s expenses.
18. A capability to record all the times an employee enters and leaves the work premises. One way to do this is to require employees to have an RFID. There may also be an GPS or a license plate reading solution. Note that a privacy requirement will prevent this information from being shared, with the employer, for example, with the exception of providing it to a law enforcement person, in the event a warrant is signed by a presiding judge.
19. A capability to use the times an employee enters and leaves the work premises to compute the time, over a month, an employee has spent at or within the work premises. This time is known as the Employee Monthly Time (“EMT”).
20. A capability to compute the total time all employees spent at the premises over a month, to be known as the Total Employee Monthly Time (“TEMT”).
21. A capability to compute an Employee’s Monthly System Earnings (“EMSE”) as the Total System Monthly Earnings (“TSME”), multiplied by the employee’s Employee Monthly Time, EMT divided by the TEMT. This is also described in Reference 1.
22. A capability to compute an Employee’s Add-In “EAI”, as follows. If the employee’s System Member Monthly Charge, SMMC, value is greater than the employee’s earnings, TSME; then, for that case, the EAI is equal to the employee’s SMMC minus the employee’s TSME. If the employee’s System Member Monthly Charge, SMMC value is not greater than the employee’s earnings, TSME; then the employee’s EAI is equal to zero. This is also described in Reference 1.
23. A capability to accept Employee’s Add-In, EAI money from the Employer, with the

expectation that the money would originate from a grant funded by, for example, the Greenhouse Gas Reduction Fund (GGRF), or could come from the Employer's budget, as a Climate Action Plan (CAP) or other expense. It could also be generated by converting some "free" parking to be a different Account Parking System Parking (System Parking), thereby generating new money to the City.

24. A capability to compute an employee's monthly payment ("EMP"), as follows: It is equal to the Employee's Monthly System Earnings, EMSE plus the employee's Add-In, EAI minus the System Member Monthly Charge, SMMC. This is also described in Reference 1.
25. A capability to automatically send out monthly statements to all System Members. System Members who are not employees will receive a bill if they have parked in the System parking during the month. The bill will then be for the member's SMMC. Each employee will receive a statement showing SMMC, EMSE, and EAI. If the employee's EAI is zero, then the employee will receive a payment in the form of cashable check for the employee's EMP. This is also explained in Reference 1.
26. A capability to protect employee privacy where privacy means that the employee's data will never be shared, with the sole exception of sharing with law enforcement officials in accordance with a valid court order requesting the data. For example, at no time will the data be shared with other employees, including those working in the management of the employer that is providing the employee parking that is the System Parking.
27. A capability to protect System Member privacy where privacy means that the System Member's data will never be shared, with the sole exception of sharing with law enforcement officials in accordance with a valid court order requesting the data.
28. A capability to allow visitors, vendors, and others, that are identified by the Company management, to be treated as employees. There could also be "visitor" parking that is not associated with the System.
29. A capability to identify System Vehicles that are parked in the visitor parking or other inappropriate parking places, since it is expected that it will required as a part of City Policy that System Vehicles that are associated with employees will be required to be parked in the System Parking. Since employees are earning money from the System Parking, it would be inappropriate for them to not use the System Parking. This information would be shared with City Management, as soon as it is collected.
30. A capability to perform regular inspection, maintenance, and repair of all System Parking facilities and associated capabilities often enough to eliminate nearly all system failures.
31. A capability to perform vendor-managed methods of enforcement.
32. A capability to have demonstrated secured financial backing with the ability to operate at full capacity for the life of the pilot program and beyond with a sustainable business model.
33. A capability to provide close coordination with all Partners, including real-time sharing of System Parking data collected, active promotion of the Dividend-Account Car-Parking Systems program in coordination with each Partner, and timely response to any complaints received or requests made by the Partners and Dividend-Account Car-Parking Systems users. Describe the type of data that is collected and can be provided to the Partners. Promotion and advertisement of the Dividend-Account Car-Parking Systems program must comply with all Partners' municipal codes and ordinances.
34. A capability to offer a Dividend-Account Car-Parking Systems program that can be deployed, operated, managed, and maintained by the vendor at no cost, except for the

possibility of the EAI payments, to the Partners and with minimal oversight needed from the Partners.

35. A capability to establish and operated multiple Dividend-Account Car-Parking Systems programs including for for cases other than employee parking, as described in Reference 2, that can be deployed, operated, managed, and maintained by the vendor at no cost, except for the EAI payment, for employee parking, to the Partners and with minimal oversight needed from the Partners.
36. A capability to conform to contract specifications, including general liability insurance, worker's compensation, automobile liability insurance, indemnification, and termination clauses. Sample contract attached.

B. Proposal Elements

Vendors interested in responding to this RFI must prepare a proposal that includes the following information:

1. Describe how drivers can become System Members.

2. Provide a detailed System maintenance plan.

3. Describe the vendor's capability to provide data and reports to the Partners, including raw and summarized data. Summarized data could include both user data (e.g., demographics, trip purpose, repeat usage, percent of trips starting and ending in close proximity to transit, mode shift, and transit usage) and trip data (e.g., average trip length, average trip time, trip start and end hotspots, trip path, estimated GHG emissions per trip). Ideally, this data should be provided via a publicly accessible API in your suggested General Dividend-Account Car-Parking Systems Feed Specification (GBFS) format. Describe vendor's ability to collect quantitative and qualitative data and report out findings from users (e.g. in-app surveys).

4. Describe how the vendor will employ anti-theft and anti-vandalism measures to ensure Systems do not pose a nuisance to the community.

5. Since the establishment of Dividend-Account Parking systems will increase bike usage, describe how the vendor will address bicycle safety concerns, including helmet use, riding at night and other safety concerns that may or may not be regulated by state vehicle codes.

6. Describe how the Dividend-Account Car-Parking Systems program may operate in conjunction with existing bike rental businesses operating in the Partners' cities.

7. Describe the vendor's plans for future growth and expansion, including possible anticipated increases in demand for good car parking systems as the public becomes more aware of the threat of anthropogenic climate change and how good systems improve economic fairness, etc.

8. Provide an estimated timeline for a twelve-to-twenty-four-month pilot Dividend-Account Car-Parking System program, including any needed permitting, set-up, promotion, advertising, maintenance and servicing, data delivery to Partners, summary and reporting on the outcome of the pilot program and possible continuation of the program.

9. Describe a recommended minimum Dividend-Account Car-Parking Systems size for the North County Coastal operating area.

10. Describe strategies for effectively educating users on proper System Parking use and the reason that society needs to improve the way we pay for the use of car parking.

11. Describe any approach you would recommend to enhance access and fairness for disadvantaged communities.

12. Describe time required to deploy a Dividend-Account Car-Parking Systems pilot program if selected based on System Parking size, etc.

13. Describe an approach to increasing the use of Dividend-Account Parking to include most city car parking, then across City boundaries, and then across County, State, and international boundaries, with the final system being one wherein nearly all System Vehicles have a single, world-wide, System Account.

References Providing Additional Description

1. ***Eliminating the Harm of Bundled-Cost or Bundled-Benefit Parking***, Presentation to the 2018 Energy Utility Environment Conference (EUEC), Mike Bullock, March 2018
2. ***A Plan to Efficiently and Conveniently Unbundle Car Parking Costs***, paper presented to the Air and Waste Management Association (AWMA) Conference in 2010, Mike Bullock and Jim Stewart, June 2010
3. ***Oceanside Civic Center Garage Space Allocation***, EXCEL Spread Sheet, Bullock, based on a file provided by Oceanside staff, July 2018

III. INSTRUCTIONS

A. Proposal Due Date

Proposals must be submitted electronically no later than **5:00 p.m. on TBD Month 2018 or 2019**. Proposals must be submitted electronically via the PlanetBids system used to download the RFI. The maximum file size for submittal is 50 megabytes, and the file type shall be Portable Document Format (PDF). The electronic system will close submissions exactly at the date and time set forth in the RFI or as changed by addenda.

B. Proposal Acceptance

Respondents are responsible for submitting and having their submittal accepted before the closing time set forth in this RFI or as changed by addenda. NOTE: Pushing the submit button on the electronic system may not be instantaneous; it may take time for the Respondent's documents to upload and transmit before the submittal is accepted. It is the Respondent's sole responsibility to ensure their document(s) are uploaded, transmitted, and arrive in time electronically. The City of Encinitas will have no responsibility for submittals that no not arrive in a timely manner, no matter what the reason.

C. Page Limit

No submissions exceeding twenty-five (25) pages will be accepted (excluding attachments). In addition, attachments may not exceed twenty-five (25) pages. The City of Encinitas discourages "padding" of proposals with brochures, extensive literature, and boilerplate material not applicable to a pilot Dividend-Account Car-Parking Systems program.

D. Proposal Format

Proposals must be organized in the following format and include the following content:

1. Letter of transmittal signed by an individual authorized to bind the proposing entity stating the firm has read and will comply with all terms and conditions of the RFI.

2. General information about the firm, including the size of the organization, location of offices, number of years in business, organizational chart, name of owners and principal parties, number and position titles of staff.

3. Qualifications of principals, project managers and key personnel who would be assigned to this project. Include their position in the firm, and types and amount of relevant experience operating a Dividend-Account Car-Parking Systems program or similar program. Identify the primary contact that will be the overall project manager. Resumes are not required, but may be included as attachments. The selected respondent may not substitute personnel without written authorization from the Partners.

4. A work plan that establishes the Respondent's understanding of, and ability to satisfy Partners' objectives. Respondent shall succinctly describe the proposed approach for implementing a Dividend-Account Car-Parking Systems program, outlining the activities, including innovative ideas that would be undertaken in completing the various tasks and specifying who would perform them.

5. A preliminary estimated schedule for deployment of a pilot Dividend-Account Car-Parking Systems program. Show all critical paths, major milestones, and decision points in pilot schedule.

6. A list of the municipal or other government agencies your firm has worked with during the past three years. Provide the following information for at least one operational system that has at least some of the similar components as would a Dividend-Account Car-Parking System program that is managed by the respondent:

    a) Name, address, and telephone number of the agency;
    b) Time period for the project;
    c) Brief description of the scope of the services provided;
    d) Identify the staff members on the project and their specific responsibilities; and
    e) Person and contact information for a reference.

IV. PROPOSAL EVALUATION

A. Proposal Evaluation

A review committee comprised of representatives from each of the potential Partner cities will judge the merit of proposals received in accordance with the general criteria defined herein. Failure of proposers to provide in their proposal any information requested in this RFI may result in disqualification of the proposal. The sole objective of the review committee will be to select the proposal that is most responsive to the Partners' needs. The Partners reserve the right to elect to not proceed with a pilot Dividend-Account Car-Parking System program and reject all proposals received through this RFI process.

1. Experience of the vendor and proposed staff. Experience of project staff with similar scope of services. Level of education, training, licensing and certification of staff

2. Approach to the project. Demonstrated understanding of the Partners' needs and solicitation requirements. Approach is well organized and presented in a clear, concise and logical manner.

3. Availability and proposed use of technology and methodologies. Quality control and thoroughness is well defined.

4. Capability to Perform. Ability to complete work within deadlines. Availability and continuity of staff during the course of the project, if selected. Unsatisfactory past performance with the City of Encinitas (or any of the Partner cities) may be considered as determined by the City of Encinitas (or any of the Partner cities) in their sole and absolute discretion.

5. Relevant Experience. Experience in performing similar services for organizations of similar size to the Partner cities. Experience with public agencies. Years of experience with these types of services.

6. Innovation. Innovative ideas on the development, operation, promotion, and sustainability of Dividend-Account Car-Parking System programs.

B. Final Negotiation

As reflected above, vendor selection will be based on a combination of factors as determined to be in the best interest of the Partners. After evaluating the proposals and discussing them further with the finalists, or the tentatively selected vendor, the City of Encinitas reserves the right to further negotiate the proposed program.

V. CONDITIONS GOVERNING THIS PROCUREMENT

A. Scope Changes, Additions and Deletions

All changes in proposal documents shall be through written addendum and furnished to all proposers. Verbal information obtained otherwise will NOT be considered in the evaluation process.

B. Rejection of Proposals

The City of Encinitas reserves the right to reject any or all Proposals and to waive informalities and minor irregularities in Proposals received and to accept any portion of Proposal or all items of Proposal if deemed in the best interest of the City of Encinitas to do so.

C. Proprietary Information

Any restrictions on the use of data contained within a Proposal must be clearly stated in the Proposal itself. Proprietary information submitted in response to this RFI will be handled in accordance with applicable City of Encinitas Procurement Regulations and the California Public Records Act.

D. Response Materials Ownership

All materials submitted regarding this RFI become the property of the City of Encinitas. Responses may be reviewed by any person at Proposal opening time and after final selection has been made. The City of Encinitas has the right to use any or all ideas presented in reply to this request, subject to the limitations outlined in Proprietary Information above. Disqualification of a proposer does not eliminate this right.

E. Acceptance of Proposal Content

The contents of the Proposal of the successful proposer will become contractual obligations if contractual agreements action ensues. Failure of the successful proposer to accept these obligations in a permit to operate, purchase agreement, purchase order, contract, delivery order or similar acquisition instrument may result in cancellation of the award and such proposer may be removed from future solicitations.

F. Cost of Proposal Preparation

The City of Encinitas shall not be liable for any pre-contractual expenses incurred by any submitting vendor. Each submitting vendor shall protect, defend, indemnify, and hold harmless the City of Encinitas from any and all liability, claims or expenses whosoever incurred by, or on behalf of, the entity participating in the preparation of its response to this RFI. Pre-contractual expenses are defined as expenses incurred by vendors in:

1. Preparing the proposal in response to this RFI;
2. Cost to acquire a permit; and
3. All other expenses incurred by a vendor related to preparation of proposal or establishment of a Dividend-Account Car-Parking System program.

G. Interview

Interviews with the top respondents may be requested. The selection of vendors invited to interview will be solely based on the Partners' discretion. The vendors asked to interview will be notified in advance.

ATTACHMENT 1

Sample License Agreement for Dividend-Account Parking Services

This License Agreement for Dividend-Account Car-Parking Sytsem Services (“Agreement”) is made this this day of September 2017, by and between the City of Encinitas ("City") and ____ ("Dividend-Account Car-Parking System Vendor").

RECITALS

1. A goal of City is to provide safe and affordable multi-modal transportation options to all residents, reduce traffic congestion, and maximize carbon free mobility.
2. Dividend-Account Car-Parking System services are a component to help the City achieve its transportation goals and the City desires to make this System available to residents and those who work or otherwise drive and park in the City.
3. Dividend-Account Car-Parking System Vendor proposes to operate a Dividend-Account Car Parking program within the City at an agreed-to location with an agree-to number of System parking spaces within the designated location or locations. As an example, based on Reference 3, there could be 239 spaces designated as System Parking, out of a total of 284 spaces in the Oceanside Civic Center Parking Garage. Note further, that if there are 259 employees that work for the City and are given parking spaces, there would be a need to establish 20 additional System Parking spaces outside of the Oceanside Civic Center Parking Garage.
4. Dividend-Account Car-Parking System Vendor will abide by all City ordinances and rules governing the use of public space.
5. Dividend-Account Car-Parking System Vendor possesses the technology necessary to install operate, maintain, and expand such a system and multiple systems as demand expands.

AGREEMENT

1. Initial Term. This Agreement is effective for twelve to eighteen months from the date of execution (“Initial Term, Phase 1”), which will include a duration of installation during which no money is exchanged so as to establish a baseline of modal splits for employee commuting, and then a year of full operation to document the modal split changes and an estimated amount of greenhouse gas (GHG) emissions saved by the program. At the conclusion of the Initial Term Phase 1, the Agreement may be extended by mutual written agreement of the parties for an additional two-year term (Initial Term, Phase 2), subject to any new terms agreed between the parties, unless either party notifies the other party of its intent not to continue with the Agreement no later than 30 days before the expiration of the Initial Term, Phase 1 and Phase 2.
2. Exclusive Operator. During the Initial Term’s Phase 1 and Phase 2, the City designates Dividend-Account Car-Parking Systems Vendor as the exclusive provider of the System services within its city limits. This designation is personal to Dividend-Account Car-Parking Systems Vendor and may not be assigned or transferred to any party. This exclusivity provision shall expire and not be renewed past the Initial Term’s Phase 1 and Phase 2 unless agreed in writing by the parties.

3. Use of City Property. City authorizes Dividend-Account Car-Parking Systems Vendor to use ("License") City property, including the public right-of-way and System Parking areas that are suitable, solely for the purposes set forth in Section 4 of this Agreement. This authorization is not a lease or an easement, and is not intended and shall not be construed to transfer any real property interest in City Property.

4. Permitted Use. Dividend-Account Car-Parking System's System Members may use City Property solely for parking System Vehicles. The City Property is maintained by the City. Dividend-Account Car-Parking Systems Vendor may operate an agree-to amount of System Parking places on City Property as set forth in Exhibit A. If at any time during the term of the Agreement Dividend-Account Car-Parking Systems Vendor desires to place additional System Parking within the City limits, Dividend-Account Car-Parking Parking Systems Vendor must request and receive authorization from the city to do so in writing. The City may limit the number of System Parking places upon identifying a potential harm to public health or safety. Dividend-Account Car-Parking Systems Vendor shall not place or attach any personal property, fixtures, or structures to City Property without the prior written consent of City.

    a. Use of City Property and Dividend-Account Car-Parking Systems Vendor's operations within the City, shall, at a minimum: a) not adversely affect City Property or the City's streets, or sidewalks; b) not adversely affect the property of any third parties; c) not inhibit pedestrian or vehicular movement, as applicable, within City Property or along other property or rights-of-way owned or controlled by the City; d) not create conditions which are a threat to public safety and security. Dividend-Account Car-Parking Systems Vendor shall instruct its customers not to park or leave any System Vehicle where they would impede pedestrian or vehicular traffic.

    b. Upon termination of this Agreement by either party, Dividend-Account Car-Parking Systems Vendor shall, at its sole cost and expense, immediately restore City Property to a condition which is visually and structurally indistinguishable from the immediately surrounding area.

5. System Parking. The City, at its own discretion, may support the System with the installation of signs and painting to further the orderly operation of the System Parking.

6. Condition of City Property

    a. City makes City Property available to Dividend-Account Car-Parking Systems Vendor in an "as is" condition. City makes no representations or warranties concerning the condition of City Property or its suitability for use by Dividend-Account Car-Parking Systems Vendor or its customers, and assumes no duty to warn either Dividend-Account Car-Parking Systems Vendor or the System Members concerning conditions that exist now or may arise in the future.

    b. City assumes no liability for loss or damage to Dividend-Account Car-Parking Systems System Members. Dividend-Account Car-Parking Systems Vendor agrees that City is not responsible for providing security at any location where Dividend-Account Car-Parking Systems Vendor's System Vehicles are parked, and Dividend-Account Car-Parking Systems Vendor hereby waives any claim against City in the event Dividend-Account Car-Parking System's System Vehicles or other property are lost, stolen, or damaged.

7. Maintenance and Care of Portion of City Property: Dividend-Account Car-Parking Systems Vendor shall be solely responsible for: (i) maintaining City Property to the City standards applicable for use by the Dividend-Account Car-Parking Systems Vendor as

permitted under Section 3; and (ii) obtaining from the City any applicable permits or approvals required by the City. Dividend-Account Car-Parking Systems Vendor shall exercise due care in the use of City Property and shall be responsible for maintaining City Property in good condition and repair. Dividend-Account Car-Parking Systems Vendor shall not act, or fail to act, in any way that result in excessive wear or damage to City Property. Dividend-Account Car-Parking Systems Vendor expressly agrees to repair, replace or otherwise restore any part or item of real or personal property that is damaged, lost or destroyed as a result of the Dividend-Account Car-Parking Systems Vendor's use of City Property. Should the Dividend-Account Car-Parking Systems Vendor fail to repair, replace or otherwise restore such real or personal property, Dividend-Account Car-Parking Systems Vendor expressly agrees to pay City's costs in making such repairs, replacements or restorations. The obligations under this Section apply to all City facilities, infrastructure, or appurtenances located on City Property.

8. Operations & Maintenance. Dividend-Account Car-Parking Systems Vendor will cover all maintenance costs for the System and maintenance to minimum level of service and reporting outlined in Exhibit A.

9. License Fee. The parties intend to agree to a license fee before the Agreement may be extended beyond the Initial Term.

10. Indemnification. Dividend-Account Car-Parking Systems Vendor shall defend, pay, indemnify and hold harmless City, its officers, officials, employees, agents, invitees, and volunteers (collectively "City Parties") from all claims, suits, actions, damages, demands, costs or expenses of any kind or nature by or in favor of anyone whomsoever and from and against any and all costs and expenses, including without limitation court costs and reasonable attorneys' fees, resulting from or in connection with loss of life, bodily or personal injury or property damage arising directly or indirectly out of or from or on account of:

    a. Any occurrence upon, at or from City Property or occasioned wholly or in part by the entry, use or presence upon City Property by Dividend-Account Car-Parking Systems Vendor or by anyone making use of City Property at the invitation or sufferance of Dividend-Account Car-Parking Systems Vendor, except such loss or damage which was caused by the sole negligence or willful misconduct of City.

    b. Use of Dividend-Account Car-Parking Systems Vendor's System Parking by any individual, regardless of whether such use was with or without the permission of Dividend-Account Car-Parking Systems Vendor.

11. Insurance. Dividend-Account Car-Parking Systems Vendor shall procure and maintain for the duration of this agreement insurance against claims for which Dividend-Account Car-Parking Systems Vendor has indemnified the City pursuant to Section 10 of this Agreement. Dividend-Account Car-Parking Systems Vendor shall maintain general liability and automobile liability insurance policies with limits of no less than one million dollars ($1,000,000.00) per occurrence for bodily injury or death, personal injury and property damage, and two million dollars ($2,000,000.00) aggregate. Each insurance policy shall name the City as an additional insured and it shall be endorsed to state that:

    (i) coverage shall not be suspended, voided, or cancelled by either party, or reduced in coverage or in limits except after thirty (30) calendar days prior written notice by certified mail, return receipt requested, has been given to City; and (ii) for any covered claims, the Dividend-Account Car-Parking Systems Vendor's insurance coverage shall be primary insurance as respects the City and any insurance or self-insurance maintained by the City shall be in excess of the Dividend-Account Car-Parking Systems Vendor's

insurance and shall not contribute with it. The insurance required to be provided herein, shall be procured by an insurance company approved by City, which approval shall not be unreasonably withheld. Additionally, before Dividend-Account Car-Parking Systems Vendor shall employ any person or persons in the performance of the Agreement, Dividend-Account Car-Parking Systems Vendor shall procure a policy of workers' compensation insurance as required by the Labor Code of the State of California, or shall obtain a certificate of self-insurance from the Department of Industrial Relations.

12. Compliance with Law. Dividend-Account Car-Parking Systems Vendor at its own cost and expense, shall comply with all statutes, ordinances, regulations, and requirements of all governmental entities applicable to its use of City Property and the operation of its System program, including but not limited to laws governing operation of vehicles. If any license, permit, or other governmental authorization is required for Dividend-Account Car-Parking Systems Vendor's lawful use or occupancy of City Property or any portion thereof, Dividend-Account Car-Parking Systems Vendor shall procure and maintain such license, permit and/or governmental authorization throughout the term of this Agreement. City shall reasonably cooperate with Dividend-Account Car-Parking Systems Vendor, at no additional cost to City, such that Dividend-Account Car-Parking Systems Vendor can properly comply with this Section and be allowed to use City Property as specified in Section 4, above.

13. Business License. Dividend-Account Car-Parking Systems Vendor is required to obtain and maintain a City Business License during the duration of this Agreement.

14. Required Reports. Dividend-Account Car-Parking Systems Vendor shall provide reports to the City concerning utilization of its System Parking not less than monthly, and shall cooperate with the City in the collection and analysis of any aggregated data concerning its operations.

15. No Joint Venture. Nothing herein contained shall be in any way construed as expressing or implying that the parties hereto have joined together in any joint venture or liability company or in any manner have agreed to or are contemplating the sharing of profits and losses among themselves in relation to any matter relating to this Agreement.

16. Termination. This Agreement may be terminated prior to the expiration date set forth in Section 1, above, upon the occurrence of any of the following conditions:

    a. Upon delivery of written notice from City to the Dividend-Account Car-Parking Systems Vendor terminating this agreement for any reason, or for no reason, by giving at least sixty (60) days' notice to the Dividend-Account Car-Parking Systems Vendor of such termination.

    b. An attempt to transfer or assign this Agreement.

    Dividend-Account Car-Parking Systems Vendor shall not terminate this Agreement without first by giving at least 180 days' written notice of plans for termination.

17. Amendment. This Agreement may be amended by mutual agreement of the parties. Such amendments shall only be effective if incorporated in written amendments to this agreement and executed by duly authorized representatives of the parties.

18. Applicable Law and Venue. The laws of the State of California shall govern the interpretation and enforcement of this Agreement. Any action to interpret or enforce the terms or conditions of this Agreement shall be brought in the Superior Court for the County of San Diego, or in the United States District Court for the Southern District of California. Dividend-Account Car-Parking Systems Vendor hereby waives any right to remove any such action from San Diego County as is otherwise permitted under

California Code of Civil Procedure Section 394.

19. Counterparts. This Agreement may be executed simultaneously or in any number of counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same agreement.

IN WITNESS WHEREOF THE PARTIES HERETO have executed this Agreement on date first above written.

CITY OF ENCINITAS	**DIVIDEND-ACCOUNT CAR-PARKING SYSTEMS VENDOR**
_____	_____
Karen Brust, City Manager	[Title]
_____	_____
Date	Date

ATTEST:

_____

City Attorney

Exhibit A

Description of Dividend-Account Car-Parking Systems Vendor's Service Level Agreement

The following performance indicators shall be met and reported to help the City measure our success serving its citizens and improving the livability and mobility of Encinitas. Dividend-Account Car-Parking Systems Vendor will maintain it's System in an excellent state of functionality and repair, with a minimum of error-free operation 95% of the time.

Performance Indicator	Description	Measurement Tool	Minimum Performance Standard	Reporting Frequency
App & customer service support portal: phone and internet. The portal will support the establishment of an account and editing an account	A new account can be entered and audited. It can be edited and an audit can verify the edits. The time and method of the submissions can be retrieved	Tool to audit accounts either by name or unique account number	Accurate 99.5% uptime.	monthly
Ability to set the value price of the parking, a per minute value	The system can accept a "value price" and use the number as described in this report	Tool to audit the fact of and the proper use of the value price	Accurate 99.5% uptime.	monthly
Ability to set the base multiplier, which is used in the congestion pricing algorithm as shown in Table 2 of Reference 2. It is expected to be a number between 1.5 and 2.5. It can be adjusted upwards if the parking is getting too full too often	The system can accept a "base multiplier" and use the number as described in Table 2 of Reference 2.	Tool to audit the fact of and the proper use of the value base multiplier	99.5% of the time	monthly
Ability to report out monthly statements	A feature to display each statement that	Interface to allow a specification of	Statements can be viewed and verified for accuracy with an accuracy of 99.5%	monthly

	was sent out to all employees and all users that are not employees, to verify accuracy	account and month to view the statement that was mailed, for verification		
Ability to accept money into an account and to pay earnings and “add-ins”, out of the account, as described in this report	Most of the money accepted will be car-parking charge but there will also money that is sent in to cover the “Add-in” payments. Most of the money will be via an automated transfere as is done for dockless bike rentals. However, an ability to accept a mailed check will also be required	Transactions will be put into a file that can be audited	Money transfers will occur and be observable with an accuracy of 99.5%	Monthlyt
Ability to report out the percent of employees at their work location that are using their allocated parking over any duration, from specific days to longer specified durations	This tool supports a request for the percent of employees that are at work without using car parking in the employee parking spaces	Software interface that will show the results on a screen and allows for the result file to be stored or printed	Functional 99.5% of the time	monthly

Ability to report out the total amount charged to employees, paid to employees as earnings and, separately, as “add ins”, over any duration, from specific days to longer specified durations	This tool supports a request for the described data	Software interface that will show the results on a screen and allows for the result file to be stored or printed	Functional 99.5% of the time	monthly
Parking spot usage rate	The monthly use rate is reported for any single parking place or for a set of parking places	The result can be viewed on screen or in a file that can be stored or printed	Data collection failure would be reported within two (2) hours during business hours between 8am to 8pm Monday through Friday except for State and Federal holidays. Direct 24/7 contact line for true emergencies, either by phone, text, and/or email Failure outside of business hours reported within two hours (2) of start of business hours	Monthly
System failure detected or reported by a member	Error either automatically reported to the person responsible and their back-ups, as a text on their phones and an email to their computer, to include the error report time	A program collects the time of the data error recognition and the time of the correction	Within two (2) hours during business hours between 8am to 8pm Monday through Friday except for State and Federal holidays. Direct 24/7 contact line for true emergencies, either by phone, text, and/or email For complaint outside of business hours, within two hours (2) of start of business hours	Monthly

June 16, 2021

Councilmember Marni von Wilpert
Chair, Active Transportation and Infrastructure Committee
City Administration Building
202 C Street
San Diego, CA 92101

RE: Parking Policy Reform for Non-Residential Uses in Transit Priority Areas and Neighborhood Commercial Uses Citywide

Dear Councilmember von Wilpert and Committee Members,

As San Diego begins to emerge from the COVID-19 pandemic, there is a decision you can make right now to bring certainty for San Diego's future, reduce costs, increase flexibility, and generate economic growth for the city's small businesses.

We urge you to pass the commercial and non-residential parking reform ordinance that will be heard at ATI Committee on June 16. These reforms will boost San Diego's local economy by acting to address the climate emergency, while supporting a more walkable, bikeable and business-friendly city.

Address the climate emergency:

Your passage of these parking reforms will demonstrate the City's leadership on the climate crisis.

- The San Diego City Council passed a climate emergency declaration on March 10, 2020, and these reforms to relax requirements for excessive amounts of parking are a key strategy to address that emergency.
- Transportation is San Diego's largest source of greenhouse gas emissions—over half of the city's total emissions come from cars and trucks on city streets.[1] Oversupplies of parking created by city mandates encourages more driving.

[1] https://www.sandiego.gov/sites/default/files/2019_cap_digital_version.pdf

- This will enable San Diego to make real progress toward achieving its Climate Action Plan goals, which aim for significant increases in walking and biking as a percentage of all trips in the city.

Support local businesses:

- These parking reforms will make development of new businesses easier and more affordable. Removing parking requirements for all neighborhood-serving retail establishments (to which customers are likely to walk or bike) means that development of new and infill businesses will be unburdened by the cumbersome process and cost of building parking—up to $25,000 per stall in parking structures.[2]
- Existing businesses will be able to adapt to new times with greater ease; these reforms will allow them to reuse existing parking spaces for other uses and make changes to their business without triggering new parking requirements.

Your passage of these commercial and non-residential parking reforms will propel San Diego to a clean, green, equitable future for local businesses, for the city's economy, and for the climate.

The San Diego region consistently ranks as having the 6th worst ozone pollution in the country[3], and this dangerous air pollution disproportionately impacts Communities of Concern. By reducing fossil fuel car trips, we can secure cleaner air for all.

Further, it will reduce the cost of doing business for local enterprises and their customers, while adding flexibility and supporting the creativity we have already seen from local businesses over the past year. It will also make San Diego more walkable, livable, and inviting for visitors, further boosting the local economy.

We urge you to pass this policy and we thank you for your leadership.

Sincerely,

Carter Rubin
Mobility and Climate Advocate
Natural Resources Defense Council

Colin Parent
Executive Director and General Counsel
Circulate San Diego

Noah Harris
Policy Advocate
Climate Action Campaign

[2] https://wginc.com/wp-content/uploads/2020/07/Parking-Construction-Cost-Outlook.pdf
[3] https://www.sandiegouniontribune.com/news/environment/story/2020-04-20/state-of-the-air